



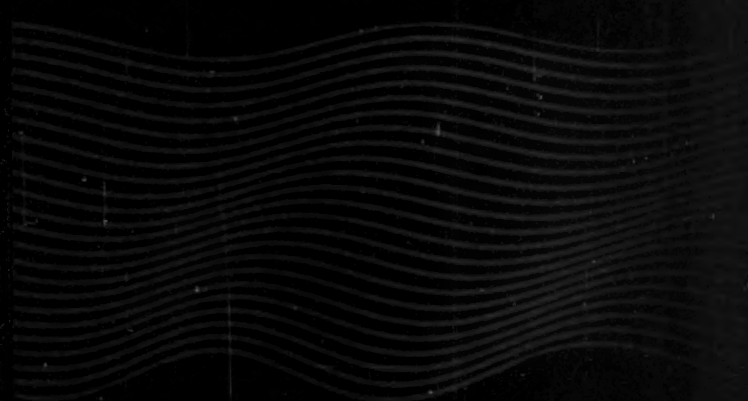
National Research
Council Canada

Conseil national
de recherches Canada

NRC · CNRC

Canadian
Journal of
Fisheries and
Aquatic
Sciences

Journal
canadien des
sciences
halieutiques et
aquatiques



The *Canadian Journal of Fisheries and Aquatic Sciences* has been published continuously since 1901, previously as *Contributions to Canadian Biology* 1901–25, *Contributions to Canadian Biology and Fisheries* 1926–34, *Journal of the Biological Board of Canada* 1934–37, and *Journal of the Fisheries Research Board of Canada* 1938–79. The *Journal* is published by the National Research Council of Canada in cooperation with the Department of Fisheries and Oceans.

The *Journal* is issued monthly to form annual volumes of twelve numbers plus Supplements.

Editorial Policy

The *Journal* publishes original research articles, critical reviews, perspectives (essays of opinion or hypothesis), and comments. Papers may concern cells, organisms, populations, ecosystems, or processes that affect aquatic production systems, and they should lead to identifiable conclusions or syntheses, which variously may amplify, modify, question, or redirect accumulated knowledge embodied in contemporary perceptions of a particular state of fisheries and aquatic sciences. They should demonstrate clearly a contribution to knowledge beyond the confirmation state. Originality should relate to more than the particular (a certain year, place, taxon, or chemical compound) such that existing understanding is reformulated or extended.

It would assist the Editors if prospective authors identified briefly by covering letter (a) aspects of their papers that meet the foregoing objectives, (b) potential referees, and (c) other manuscripts contemplated or in press containing the same or similar information.

Submissions in English or French are acceptable. The information must be original, that is, not copyrighted, published, or submitted elsewhere except in abstract form or unless by written consent of the Editor. The National Research Council of Canada accepts no responsibility for statements or opinions expressed by a contributor. Acceptance of an advertisement, announcement, or other material does not imply endorsement by either the *Journal's* Editors or the National Research Council. The use of proprietary names does not imply endorsement of the product or company.

Guides

A guide for authors appears in the first issue of each volume and is available free from the *Journal*.

Microfilm

Issues from 1934 through the current volume can be purchased on 16- or 35-mm microfilm. Photocopies of individual articles or issues can be purchased from University Microfilms International, 330 North Zeeb Road, Ann Arbor, MI 48106, USA.

©National Research Council of Canada 1994. World rights reserved.

The National Research Council of Canada grants permission* to individuals who wish to quote short excerpts and reproduce figures, tables, or photographs from articles in this journal, provided that the source of such material is fully acknowledged. As a courtesy the consent of authors of such material should be obtained.

Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by the National Research Council of Canada for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of \$3.00 per copy is paid directly to CCC, 21 Congress Street, Salem, MA 01970, USA. 0706-652X/94 \$3.00 + 0.00.

*The above permission does not extend to other kinds of copying, such as copying for general distribution, for advertising, or promotional purposes, for creating new collective works, or for resale. For such copying, arrangements must be made with the National Research Council of Canada.

U.S. second-class postage paid at Champlain, N.Y., and at additional mailing offices. U.S. POSTMASTER: Send address changes to *Canadian Journal of Fisheries and Aquatic Sciences*, c/o USACAN Media Distribution Center, P.O. Box 2888, Plattsburg, NY 12901, USA.

Publié sans interruption depuis 1901, le *Journal canadien des sciences halieutiques et aquatiques* a paru sous plusieurs titres : *Contributions to Canadian Biology* 1901–1925, *Contributions to Canadian Biology and Fisheries* 1926–1934, *Journal of the Biological Board of Canada* 1934–1937 et *Journal de l'office des recherches sur les pêcheries du Canada* 1938–1979. Le *Journal* est publié par le Conseil national de recherches du Canada en collaboration avec le ministère des Pêches et des Océans.

Le *Journal* paraît tous les mois, formant ainsi un volume de douze numéros, et offre en plus jusqu'à deux suppléments par année.

Politique de rédaction

Le *Journal* publie des articles fondés sur une recherche originale, des critiques, des essais portant sur une opinion ou une hypothèse (perspectives) et des commentaires. Les textes peuvent avoir trait aux cellules, aux organismes, aux populations, aux écosystèmes ou aux processus qui influent sur les systèmes de production aquatique. Ils doivent aboutir à des conclusions ou synthèses précises qui, de diverses façons, peuvent accroître, modifier, remettre en question ou réorienter le bagage actuel des connaissances et perceptions dans une discipline donnée des sciences aquatiques. Ils doivent clairement démontrer qu'ils contribuent aux connaissances en faisant plus que corroborer des faits. L'originalité doit dépasser le caractère particulier (une année, un endroit, un taxon ou un composé chimique donné) et tenir à une épuraison ou à une reformulation des connaissances actuelles.

Les auteurs éventuels aideraient les rédacteurs s'ils identifiaient brièvement, dans une lettre d'accompagnement a) les aspects de leurs textes qui répondent particulièrement aux objectifs indiqués ci-dessus, b) des arbitres possibles et c) d'autres manuscrits envisagés ou sous presse, dont la teneur est identique ou se rapproche de celui qui est soumis.

Les contributions peuvent être en anglais ou en français. Elles doivent être originales, c.-à-d. qu'elles ne doivent pas avoir fait l'objet d'un copyright, avoir été publiées ou soumises ailleurs, sauf sous forme abrégée ou avec le consentement du rédacteur. Le Conseil national de recherches du Canada ne se tient en aucune façon responsable des opinions exprimées par un collaborateur ou des déclarations que pourrait faire ce dernier. La publication d'annonces publicitaires, d'avis et autres n'implique pas l'endossement de leur contenu par les directeurs du *Journal* ou du Conseil national de recherches du Canada. L'utilisation des noms de marques de commerce ne signifie aucunement une sanction du produit en question ou de la compagnie qui le fabrique.

Guides

Le guide des auteurs paraît dans la première livraison de chaque volume et est offert gratuitement par le *Journal*.

Microfilms

On peut acheter sur microfilms de 16 ou 35 mm tous les numéros publiés depuis 1934. Des photocopies d'articles ou de numéros individuels sont aussi en vente auprès de University Microfilms International, 330 North Zeeb Road, Ann Arbor, MI 48106, É.-U.

©Conseil national de recherches du Canada 1994. Tous droits réservés.

Le Conseil national de recherches du Canada accorde aux particuliers la permission* de citer de brefs extraits et de reproduire des figures, des tableaux ou des photos dans les articles du *Journal*, à la condition que la source soit indiquée explicitement. Dans ce cas, il convient, par courtoisie, d'obtenir le consentement des auteurs.

Le Conseil national de recherches du Canada autorise les bibliothèques et autres utilisateurs inscrits au Copyright Clearance Center (CCC) Transactional Reporting Service à photocopier les documents destinés à un usage interne ou personnel, ou à l'usage interne ou personnel de clients particuliers, à la condition que le tarif de base de 3 \$ par copie soit payé directement au CCC, 21 Congress Street, Salem, MA 01970, USA. 0706-652X/94 3,00 \$ + 0.00.

*La présente permission ne s'applique pas à d'autres genres de reproduction, notamment la reproduction en vue d'une distribution générale, à des fins de publicité ou de promotion, pour la création de nouveaux travaux collectifs, ou pour la revente. Dans ces cas, il faut prendre les dispositions qui s'imposent en communiquant avec le Conseil national de recherches du Canada.

Courrier de seconde classe des É.-U. payé à Champlain, N.Y., et d'autres centres de courrier. MAÎTRE DE POSTE des É.-U. : Faire parvenir les corrections d'adresse à *Journal canadien des sciences halieutiques et aquatiques*, a/s du Service de distribution médias USACAN Inc., C.P. 2888, Plattsburg, NY 12901, É.-U.

Canadian Journal of Fisheries and Aquatic Sciences

Journal canadien des sciences halieutiques et aquatiques

Volume 51, Index 1994

D.G. Cook
M.M. Milne
P.E.K. Symons
N. Moir

Editor/Rédacteur
Assistant to the Editor/Adjointe au rédacteur
Consulting Editor/Rédacteur-conseil (Victoria, B.C.)
Consulting Editor/Rédacteur-conseil (Nepean, Ont.)

Editorial Board/Conseil de rédaction

L.M. Dickie
G.S. Jamieson
J.R.M. Kelso
J.D. Neilson
L.S. Parsons
R.M. Peterman
J.C. Roff
P. Schwinghamer
C.J. Walters
W.G. Warren
N.H.F. Watson

DFO/MPO, Dartmouth (Advisor/Conseiller)
DFO/MPO, Nanaimo (Associate Editor/Rédacteur associé)
DFO/MPO, Sault Ste. Marie (Associate Editor/Rédacteur associé)
DFO/MPO, St. Andrews (Associate Editor/Rédacteur associé)
DFO/MPO, Ottawa (Advisor/Conseiller)
Simon Fraser University (Advisor/Conseiller)
University of Guelph (Advisor/Conseiller)
DFO/MPO, St. John's (Deputy Editor/Rédacteur adjoint)
University of British Columbia (Advisor/Conseiller)
DFO/MPO, St. John's (Associate Editor/Rédacteur associé)
DFO/MPO, Halifax (Associate Editor/Rédacteur associé)

Research Journal/Revue scientifique

Bruce P. Dancik
Iain E.P. Taylor

Editor-in-chief/Directeur général
Assistant Editor-in-chief/Directeur général adjoint

Publishing Department/Service de publication

Aldyth Holmes
Paul McClymont
Susan R. Strahlendorf
Mike Boroczki
Jennifer Douglas
Ginette Fortier

Director/Directrice
Business Manager/Gestionnaire des affaires
Production Manager/Gestionnaire de la production
Senior Publication Officer/Agent principal de publication
Publication Officer/Agente de publication (613-993-0368)
Publication Officer (French manuscripts)/Agent de publications (manuscripts français) (613-993-9117)
Advertising/Annonces publicitaires (613-993-9085)
Reprints/Tirés à part (613-993-09151)

Hoda Jabbour
Eileen Fink

Editorial Office:

Research Journals
National Research Council of Canada
Ottawa, ON K1A 0R6
Canada
Telephone (613) 993-2209
FAX (613) 952-7656
E-mail: reserach.journals@nrc.ca

Bureau de rédaction :

Revue scientifique
Conseil national de recherches du Canada
Ottawa ON K1A 0R6
Canada
Téléphone (613) 993-2209
Télécopieur (613) 952-7656
Courrier électronique : research.journals@nrc.ca

The Journal is abstracted or indexed in/Le Journal est résumé ou signalé dans :

Aquatic Sciences and Fisheries Abstracts, Biological Abstracts, Biological & Agricultural Index, Chemical Abstracts, Current Awareness in Biological Sciences, Current Contents, FAO Freshwater and Aquaculture Contents Tables, FAO Marine Science Contents Tables, Geo Abstracts, GEOBASE, Meteorological and Geostrophysical Abstracts, Oceanic Abstracts, and Science Citation Index

PREFACE/PRÉFACE

In 1968, the Fisheries Research Board of Canada published Bulletin 164, a subject-author index and list of its publications to 1964. Miscellaneous Special Publications 18, covering the period 1965 to 1972, was published in 1973. Between 1973 and 1976, annual subject-author indexes and lists of publications were published as separate issues of the Journal.

Since 1977, the annual index has contained a subject index, an author index, and a list of publications. Entries in the subject index consist of an entry term, a number of modifying terms, if required, and a taxonomic or common name and a geographic term, if appropriate. Entry terms and, wherever possible, modifying terms are selected from the *Aquatic sciences and fisheries thesaurus*, ASFIS Reference Series No. 6. However, it is sometimes necessary to use modifying terms not found in the *Thesaurus* to convey adequately all concepts. The principal authority for taxonomic and common names for Canadian and American marine and freshwater fishes is *A list of common and scientific names of fishes from the United States and Canada* (5th ed., 1991), Special Publication No. 20 of the American Fisheries Society; for mollusks *Common and scientific names of aquatic invertebrates from the United States and Canada*, Special Publication No. 16 of the American Fisheries Society (1988), and for decapod crustaceans *Common and scientific names of aquatic invertebrates from the United States and Canada*, Special Publication No. 17 of the American Fisheries Society (1989). Where authors have used names or spellings not conforming to those recommended, entry terms for such names are included, referring to the recommended names under which documents are indexed.

En 1968, l'Office des recherches sur les pêcheries du Canada publiait le bulletin no 164 qui constituait un index des matières et des auteurs, ainsi qu'une liste de ses publications jusqu'à 1964. Le no 18 des Publications diverses spéciales, visant la période de 1965 à 1972, a paru en 1973. Entre 1973 et 1976, on a publié chaque année un index des matières et des auteurs ainsi qu'une liste des publications dans un numéro distinct du Journal.

Depuis 1977, l'index annuel comprend un répertoire des matières et des auteurs et une liste des publications. Les notices de l'index des matières sont composées d'un terme d'entrée, d'un certain nombre de termes modificatifs si nécessaire, ainsi que d'une désignation taxonomique ou d'une appellation courante et d'un terme géographique au besoin. Les termes d'entrée et, dans la mesure du possible, les termes modificatifs sont choisis d'après l'*Aquatic sciences and fisheries thesaurus*, no 6 de la série de référence d'ASFIS. Cependant, il est parfois nécessaire d'utiliser des termes modificatifs qu'on ne trouve pas dans le *Thesaurus* pour exprimer convenablement tous les concepts. Le principal ouvrage qui fasse autorité en ce qui concerne les appellations communes et taxonomiques des espèces de poisson d'eaux douces et marines des États-Unis et du Canada est intitulé *A list of common and scientific names of fishes from the United States and Canada* (5e édition, 1991), Special Publication No. 20 de l'American Fisheries Society; les mollusques sont traités dans *Common and scientific names of aquatic invertebrates from the United States and Canada*, Special Publication No. 16 de l'American Fisheries Society (1988) et les crustacés décapodes dans *Common and scientific names of aquatic invertebrates from the United States and Canada*, Special Publication No. 17 de l'American Fisheries Society (1989). Quand un auteur utilise des désignations ou un orthographe différents des formes recommandées, on inclut les termes d'entrée pour ces noms en renvoyant aux noms recommandés sous lesquels les documents sont indexés.

Prepared under contract by the Huntsman Marine Science Centre (HMSC), St. Andrews, NB

Établi à forfait par le Centre des sciences de la mer Huntsman (CSMH), St. Andrews (N.-B.)

Printed in Canada

Imprimé au Canada

LIST OF ESTABLISHMENTS

The number in front of each address corresponds to the number shown at the end of titles in some of the listed series of publications and indicates from which establishment the publication originated.

- (1) Department of Fisheries and Oceans
Pacific Biological Station
Hammond Bay Road
Nanaimo, British Columbia V9R 5K6
- (2) Department of Fisheries and Oceans
West Vancouver Laboratory
4160 Marine Drive
West Vancouver, British Columbia V7V 1N6
- (3) Department of Fisheries and Oceans
Freshwater Institute
501 University Crescent
Winnipeg, Manitoba R3T 2N6
- (4) Department of Fisheries and Oceans
Biological Station
St. Andrews, New Brunswick E0G 2X0
- (5) Department of Fisheries and Oceans
Bedford Institute of Oceanography
P.O. Box 1006
Dartmouth, Nova Scotia B2Y 4A2
- (6) Department of Fisheries and Oceans
P.O. Box 550
Halifax, Nova Scotia B3J 2S7
- (7) Department of Fisheries and Oceans
Northwest Atlantic Fisheries Centre
P.O. Box 5667
St. John's, Newfoundland A1C 5X1
- (8) Department of Fisheries and Oceans
200 Kent Street
Ottawa, Ontario K1A 0E6
- (9) Department of Fisheries and Oceans
Bayfield Institute
P.O. Box 5050
867 Lakeshore Road
Burlington, Ontario L7R 4A6
- (10) Department of Fisheries and Oceans
555 West Hastings Street
Vancouver, British Columbia V6B 5G3

LISTE DES ÉTABLISSEMENTS

Le chiffre placé devant chaque adresse correspond à celui qui figure à la fin des titres de certaines des séries de publications énumérées, et il indique d'où provient la publication.

- (1) Ministère des Pêches et des Océans
Station biologique du Pacifique
chemin Hammond Bay
Nanaimo (Colombie-Britannique) V9R 5K6
- (2) Ministère des Pêches et des Océans
Laboratoire de West Vancouver
4160, promenade Marine
West Vancouver (Colombie-Britannique) V7V 1N6
- (3) Ministère des Pêches et des Océans
Institut des eaux douces
501, University Crescent
Winnipeg (Manitoba) R3T 2N6
- (4) Ministère des Pêches et des Océans
Station biologique
St. Andrews (Nouveau Brunswick) E0G 2X0
- (5) Ministère des Pêches et des Océans
Institut océanographique de Bedford
C.P. 1006
Dartmouth (Nouvelle-Écosse) B2Y 4A2
- (6) Ministère des Pêches et des Océans
C.P. 550
Halifax (Nouvelle-Écosse) B3J 2S7
- (7) Ministère des Pêches et des Océans
Centre des pêches de l'Atlantique nord-ouest
C.P. 5667
St. John's (Terre-Neuve) A1C 5X1
- (8) Ministère des Pêches et des Océans
200, rue Kent
Ottawa (Ontario) K1A 0E6
- (9) Ministère des Pêches et des Océans
Institut Bayfield
C.P. 5050
867, chemin Lakeshore
Burlington (Ontario) L7R 4A6
- (10) Ministère des Pêches et des Océans
555, rue Hastings ouest
Vancouver (Colombie-Britannique) V6B 5G3

- | | |
|---|--|
| <p>(11) Department of Fisheries and Oceans
Maurice Lamontagne Institute
P.O. Box 1000
850 Route de la Mer
Mont-Joli, Quebec G5H 3Z4</p> <p>(12) Department of Fisheries and Oceans
Institute of Ocean Sciences
P.O. Box 6000
Sidney, British Columbia V8L 4B2</p> <p>(13) Department of Fisheries and Oceans
1 Canal Drive
Sault Ste. Marie, Ontario P6A 6W4</p> <p>(14) Department of Fisheries and Oceans
P.O. Box 5030
Moncton, New Brunswick E1C 9B6</p> <p>(15) Department of Fisheries and Oceans
Prince Rupert, British Columbia V8J 1G8</p> <p>(16) Department of Fisheries and Oceans
Quebec Region
901 Cap Diamant
P.O. Box 15,500
Quebec, Quebec G1K 7Y7(11)</p> | <p>(11) Ministère des Pêches et des Océans
Institut Maurice-Lamontagne
C.P. 1000
850, route de la Mer
Mont-Joli (Québec) G5H 3Z4</p> <p>(12) Ministère des Pêches et des Océans
Institut des sciences de la mer
C.P. 6000
Sidney (Colombie-Britannique) V8L 4B2</p> <p>(13) Ministère des Pêches et des Océans
1, Canal Drive
Sault-Ste-Marie (Ontario) P6A 6W4</p> <p>(14) Ministère des Pêches et des Océans
C.P. 5030
Moncton (Nouveau-Brunswick) E1C 9B6</p> <p>(15) Ministère des Pêches et des Océans
Prince Rupert (Colombie-Britannique) V8J 1G8</p> <p>(16) Ministère des Pêches et des Océans
Région du Québec
901, Cap Diamant
C.P. 15,500
Quebec (Québec) G1K 7Y70</p> |
|---|--|

ABBREVIATIONS

Publications

- J - Canadian Journal of Fisheries and Aquatic Sciences
AR - Annual Report
TF - Canadian Technical Report of Fisheries and Aquatic Sciences
MF - Canadian Manuscript Report of Fisheries and Aquatic Sciences
DF - Canadian Data Report of Fisheries and Aquatic Sciences
IF - Canadian Industry Report of Fisheries and Aquatic Sciences
TH - Canadian Technical Report of Hydrography and Ocean Sciences
DH - Canadian Data Report of Hydrography and Ocean Sciences
CH - Canadian Contractor Report of Hydrography and Ocean Sciences
EC - Economic and Commercial Analysis Report
R. - Reprinted
Rev. - Revised
F. - French

Geographic abbreviations

- | | |
|-------------------------|--------------------------------|
| Alta. - Alberta | N.W.T. - Northwest Territories |
| B.C. - British Columbia | Ont. - Ontario |
| Man. - Manitoba | P.E.I. - Prince Edward Island |
| N.B. - New Brunswick | Que. - Quebec |
| Nfld. - Newfoundland | Sask. - Saskatchewan |
| N.S. - Nova Scotia | Yuk. - Yukon |

The names of states in the United States of America are abbreviated according to the *CBE Style Manual*.

- | | |
|-----------------|----------------|
| Atl. - Atlantic | Pac. - Pacific |
| I. - Island | R. - River |
| L. - Lake | |

Certain geographic areas have their major subdivisions designated by N(north), S(south), E(east), W(west), NW(northwest), NE(northeast), etc.

ABRÉVIATIONS

Publications

J -	Journal canadien des sciences halieutiques et aquatiques
AR -	Rapport annuel
TF -	Rapport technique canadien des sciences halieutiques et aquatiques
MF -	Rapport manuscrit canadien des sciences halieutiques et aquatiques
DF -	Rapport statistique canadien des sciences halieutiques et aquatiques
IF -	Rapport canadien à l'industrie sur les sciences halieutiques et aquatiques
TH -	Rapport technique canadien sur l'hydrographie et les sciences océaniques
DH -	Rapport statistique canadien sur l'hydrographie et les sciences océaniques
CH -	Rapport canadien des entrepreneurs sur l'hydrographie et les sciences océaniques
EC -	Rapport de l'analyse économique et commerciale
R. -	réimprimé
Rev. -	révisé
F. -	français

Abréviations des noms géographiques

Alta. -	Alberta	N.W.T. -	Territoires du Nord-Ouest
B.C. -	Colombie-Britannique	Ont. -	Ontario
Man. -	Manitoba	P.E.I. -	Île-du-Prince-Édouard
N.B. -	Nouveau-Brunswick	Que. -	Québec
Nfld. -	Terre-Neuve	Sask. -	Saskatchewan
N.S. -	Nouvelle-Écosse	Yuk. -	Territoire du Yukon

Les abréviations des noms des états des États-Unis sont tirées du *CBE Style Manual*.

Atl. -	Atlantique	Pac. -	Pacifique
I. -	Île	R. -	Rivière
L. -	Lac		

Certaines régions géographiques ont leurs principales subdivisions indiquées de la façon suivante: N(nord), S(sud), E(est), W(ouest), NW(nord-ouest), NE(nord-est), etc

LIST OF THE PRINCIPAL INDEX TERMS USED IN THE SUBJECT INDEX/
LISTE DES PRINCIPAUX TERMES UTILISÉS DANS L'INDEX DES MATIÈRES

To reduce the size of the subject index, some specific concepts have been grouped together under more general index terms; these are listed in capital letters below. Publications dealing with fecundity, for example, are to be found under Population Dynamics.

Pour réduire l'espace occupé par l'index des matières, certains concepts ont été groupés sous des termes plus généraux; ceux-ci sont inscrits en lettres majuscules ci-dessous. Par exemple, les publications traitant de fécondité seront classées sous "Population Dynamics".

Abundance (see **DISTRIBUTION AND ABUNDANCE**)

AGE AND GROWTH (Age determination; growth patterns and rates)

Age composition (see **POPULATION STRUCTURE**)

Annual reports (see **INFORMATION SERVICES**)

AQUACULTURE (Freshwater; Marine; Hatcheries)

BEHAVIOR

Bibliographies (see **INFORMATION SERVICES**)

Biochemistry (see **PHYSIOLOGY AND BIOCHEMISTRY**)

BIOGEOGRAPHY

Check lists (see **INFORMATION SERVICES**)

Competition (see **PREDATION AND COMPETITION**)

COMPUTER PROGRAMS AND DATA PROCESSING

CONFERENCES (Symposia; Workshops)

CRUISES (Fishery; Plankton; Oceanographic)

Data processing (see **COMPUTER PROGRAMS AND DATA PROCESSING**)

DISEASES AND PARASITES

DISTRIBUTION AND ABUNDANCE (Geographic; Vertical; Horizontal)

ECONOMICS AND SOCIOLOGY

EGGS AND LARVAE

ENVIRONMENTAL EFFECTS (Effects of environmental conditions on organisms and fisheries)

ENVIRONMENTAL IMPACT (Effects of man-induced environmental changes on organisms and fisheries)

Equipment (see **METHODOLOGY AND TECHNIQUES**)

Fecundity (see **POPULATION DYNAMICS**)

FISH HANDLING (Aquatic products and their handling)

Fishery surveys (see **FISHERIES AND FISHABLE STOCKS**)

FISHES (general)

Fishery cruises (see **CRUISES**)

Fishery management (see **FISHERIES AND FISHABLE STOCKS**)

FOOD AND FEEDING (including feeding behavior)

Gear (see **FISHERIES AND FISHABLE STOCKS**)

Genera, new (see **NEW GENERA**)

GENETICS (Hybrids, Ploidy; Population)

Growth (see **AGE AND GROWTH**)

HABITAT

Hatcheries (see **AQUACULTURE**)

HISTORICAL ACCOUNT

Hydrology (see **OCEANOGRAPHY AND LIMNOLOGY**)

INFORMATION SERVICES (Annual Reports; Bibliographies; Check lists; Manuals)

INTRODUCED SPECIES

Limnology (see **OCEANOGRAPHY AND LIMNOLOGY**)

Manuals (see **INFORMATION SERVICES**)

METEOROLOGY

METHODOLOGY AND TECHNIQUES (Laboratory methods; Analysis; Equipment)

MIGRATIONS AND TAGGING (including migratory behavior)

MODELS (Mathematical; Analytical)

MORPHOLOGY AND TAXONOMY

Mortality (see **POPULATION DYNAMICS**)

NAVIGATION

NEW GENERA

NEW RECORDS

NEW SPECIES

Nutrients (see **OCEANOGRAPHY AND LIMNOLOGY**)

OCEANOGRAPHY AND LIMNOLOGY (Physical; Chemical; Biological; Hydrology; Nutrients)

Oceanographic cruises (see **CRUISES**)

Parasites (see **DISEASES AND PARASITES**)

PHYSIOLOGY AND BIOCHEMISTRY (including metabolism)

PLANKTON (Nanno-; Phyto-; Zoo-)

Plankton cruises (see **CRUISES**)

POLLUTION (Pollutants; Pollution monitoring)

POPULATION DYNAMICS (Dynamical characteristics; Recruitment; Fecundity; Spawning; Sexual maturity; Mortality

Population Genetics (see **GENETICS**)

POPULATION STRUCTURE (Structural characteristics; Age composition, Weight, Body size)

PREDATION AND COMPETITION (including interspecific and intraspecific relationships)

PRODUCTION (Primary; Secondary)

Records, new (see **NEW RECORDS**)

Recruitment (see **POPULATION DYNAMICS**)

REPRODUCTION (Biology)

RESEARCH INSTITUTIONS

Sampling (see **FISHERIES AND FISHABLE STOCKS**)

Sexual Maturity (see **POPULATION DYNAMICS**)

Sociology (see **ECONOMICS AND SOCIOLOGY**)

Spawning (see **POPULATION DYNAMICS**)

Species, new (see **NEW SPECIES**)

SPORT FISHING

Stock assessment (see **FISHERIES AND FISHABLE STOCKS**)

Symposia (see **CONFERENCES**)

tagging (see **MIGRATIONS AND TAGGING**)

Taxonomy (see **MORPHOLOGY AND TAXONOMY**)

TOXICITY (Toxicants; Toxicity tests)

Workshops (see **CONFERENCES**)

ABALONE, PINTO (*Haliotis kamtschatkana*)

fishery management, stock assessment, fishery survey, Queen Charlotte Islands, B.C.: MF 2166

AGE AND GROWTH

American eel, diets, growth, temperature, effects: TF 2013

American lobster, growth, mathematical models, RNA, DNA, water temperature: J 51(2): 286

Atlantic cod, fish culture, salinity, growth, food conversion: J 51(7): 1569

Atlantic cod, fish larvae, survival, growth, comparative studies, Norway: J 51(5): 1012

Atlantic herring, growth, body condition, length-weight relationships, correlational analysis, Northwest Atlantic Ocean: J 51(5): 1169

Atlantic salmon, brown trout, genetics, growth, survival, polyploids, hybrids: J 51(Suppl. 1): 16

Atlantic salmon, fish physiology, hormones, thyroid, olfactory organs, chemical stimuli: J 51(9): 1985

Atlantic salmon, survival, stocking density, fry, growth, White River, Vt.: J 51(10): 2164

blue endeavour prawns, growth, mathematical models: J 51(7): 1585

bluefish, growth, feeding behavior, Northwest Atlantic Ocean: J 51(8): 1752

chinook salmon, coho salmon, genetics, polyploids, hybrids, survival, growth: J 51(Suppl. 1): 31

chinook salmon, swimming, growth, thyroid, diets: J 51(9): 1975

coho salmon, osmoregulation, growth, cultured organisms, natural populations, salinity tolerance: J 51(10): 2170

European eel, growth, otoliths, marking analytical techniques, Camargue, France: J 51(3): 506

fish, growth, tagging, mathematical models: J 51(8): 1689

freshwater fish, growth, water temperature, mathematical models, Tjeukemeer Lake, Netherlands: J 51(3): 516

jackass morwong, age determination, otoliths, lymphatic system, organism morphology, marine fish: J 51(10): 2341

marine fish, age determination, methodology, otoliths: J 51(10): 2333

Mollusca, Sepioidea, age determination, growth, statocysts, analytical techniques: J 51(11): 2612

rainbow trout, pollution effects, arsenic compounds: J 51(2): 372

red hind, growth, otoliths, environmental factors, Bermuda, Puerto Rico: J 51(1): 133

saugeye, growth, feeding behavior, fish larvae: J 51(9): 1993

sea lamprey, life cycle, metamorphosis, water temperature, photoperiod, food availability: J 51(9): 2045

sockeye salmon, growth, fish physiology, osmoregulation: J 51(4): 974

striped bass, growth, fish physiology, swimming: J 51(7): 1519

sunfish, fish physiology, vision, body size, correlational analysis: J 51(9): 2017

tilapia, growth regulators, hormones, vaccines: J 51(1): 1

tropical loliginid squid, growth, muscle: J 51(4): 830

walleye, age determination, scale reading: J 51(8): 1721

white sucker, growth, sexual maturity, food availability, Ont.: J 51(9): 2066

yellow perch, growth, natural populations, enclosures, benthos, prediction, mathematical models: J 51(11): 2501

yellowfin tuna, fishery management, stock assessment, growth curves, biological age, length, mathematical models, Atlantic ocean: J 51(3): 723

ALASKA, GULF OF

Pacific halibut, fishery surveys, catch/effort, geographical distribution, mathematical models: J 51(7): 1506

ALASKA (STATE) USA

chinook salmon, population genetics, stock identification, cell organelles, DNA, Kenai River, Kaslof River: J 51(Suppl. 1): 170

chum salmon, population genetics, fishery management, stock identification, geographical distribution, Russia: J 51(Suppl. 1): 84

pink salmon, fishery management, genetics, natural populations, body size, sexual maturity, Auke Creek: J 51(Suppl. 1): 9

plankton, food webs, nitrogen, carbon, energy flow, Smith Lake: J 51(6): 1338

Tanner crab, organism aggregations, reproductive behavior, Kodiak: J 51(6): 1273

ALBERTA (PROVINCE) CANADA

aquatic environments, toxicity, toxicants, conferences, Edmonton: TF 1942

Chaoborus, indicator species, fossils, natural populations, freshwater lakes, freshwater fish: J 51(6): 1376

Invertebrata, pollution effects, chlorine compounds, sediments, long-term records, fresh water lakes: J 51(4): 923

ALEWIFE (*Alosa pseudoharengus*)

blueback herring, homing behavior, tagging, anadromous migrations, Saint John River, N.B.: TF 2015

ALGAE- see also PLANKTON

Aphanizomenon flos-aguae, *Ceratium hirundinella*,

Cryptomonas erosa, *Microcystis aeruginosa*, recruitment, vertical migrations, algal blooms, eutrophic lakes, Wis.: J 51(12): 2825

Aphanizomenon schindleri, new species, organism morphology, taxonomy, Experimental Lakes Area: J 51(10): 2267

Bacillariophyceae, conferences, diatom, taxonomy, data collections, polar zone: TF 1957

Invertebrata, ecosystems, food chains, aquatic plants, Man.: J 51(3): 681

Alosa aestivalis- see HERRING, BLUEBACK

Alosa pseudoharengus- see ALEWIFE

AMPHIPODA

Gammarus fasciatus, trace metals, bioaccumulation, pollution indicators, St. Lawrence River: J 51(9): 2003

Anguilla anguilla- see EEL, EUROPEAN

Anguilla rostrata- see EEL, AMERICAN

ANNUAL REPORTS

fishery policy, fishery management, DFO, Canada: AR

Anoplopoma fimbria- see SABLEFISH

SUBJECT INDEX/INDEX SUJET

AQUACULTURE

- American eel, diets, growth, temperature, effects: TF 2013
- American plaice, fish culture, salinity effects, osmoregulation, survival: J 51(11): 2448
- Arctic char, rainbow trout, diets, fatty acids, growth, lipids, metabolism: J 51(6): 1391
- Atlantic cod, fish culture, salinity, growth, food conversion: J 51(7): 1569
- Atlantic halibut, phytoplankton, feeding experiments, intestines, fish culture: J 51(8): 1899
- Atlantic salmon, coho salmon, phenotypes, phenotypic variations, organism morphology, fish culture, Norway: J 51(12): 2808
- Atlantic salmon, environmental impact, aquaculture effluents, benthos, N.B., ME.: TF 1949
- blue mussel, mollusc culture, fishery management, Magdalen Islands: IF 221
- chinook salmon, fish culture, sex hormones, fish eggs: TF 1955
- chinook salmon, population genetics, stock identification, cultured organisms, natural populations, DNA, B.C.: J 51(Suppl. 1): 267
- coho salmon, colonization, natural populations, hatcheries, B.C.: TF 1933
- coho salmon, fish physiology, steroids, cultured organisms, natural populations: J 51(10): 2179
- coho salmon, osmoregulation, growth, cultured organisms, natural populations, salinity tolerance: J 51(10): 2170
- coho salmon, swimming, salinity tolerance, cultured organisms, natural populations: J 51(10): 2188
- mussel culture, identification keys, electrophoresis, enzymes, N.S.: TF 1969
- Pacific salmon, population genetics, brood stocks, hatcheries, inbreeding, natural populations: J 51(Suppl. 1): 310
- Pacific salmon, cell organelles, DNA, cultured organisms, natural populations: J 51(Suppl. 1): 290
- phytoplankton, introduced species, ballast tanks, environmental impact, Canada: DF 937
- rainbow trout, fish culture, fish diseases, gills, skin, therapy, evaluation: J 51(8): 1728
- rainbow trout, genetics, cell organelles, DNA, spawning populations, cultured organisms, natural populations, Ont.: J 51(Suppl. 1): 284
- resuspended sediments, seafloor sampling, grain size, marine aquaculture, L'Etang inlet, N.B.: TH 156
- Salmonidae, fins, bioerosion, length, natural populations, hatcheries: J 51(3): 636
- sea scallop, metabolism, phosphorus, scallop culture, spectroscopic techniques, N.S.: J 51(9): 2105
- scallop culture, aquaculture techniques, economic analysis, Passamaquoddy Bay, N.B.: TF 2012

AQUATIC ENVIRONMENT

- food webs, biomass, body size, pelagic environment, mathematical models, Lake Michigan, Lake Ontario: J 51(11): 2603

AQUATIC INSECTS

- Bacillus thuringiensis* var. *israelensis*, pesticides, benthos, Invertebrata, Susquehanna River, Pa.: J 51(2): 295

- biological sampling, emergence, Assiniboine River, Man.: TF 1995
- emergence, checklists, Lake Winnipeg: MF 2223
- feeding behavior, grazing mayflies, periodicity: J 51(2): 450
- mayflies, brook trout, avoidance reactions, predation: J 51(11): 2549
- predation, spatial variations, statistical analysis: J 51(10): 2210
- Simuliidae, ingestion, insect larvae, current velocity, Que.: J 51(7): 1615

AQUATIC MAMMALS

- Canadian beaver, water quality, ice cover, Catamaran Brook, Little Southwest Miramichi River, N.B.: TF 1986

AQUATIC ORGANISMS

- chlorophylls, *Daphnia*, herbivores, thermal stratification, freshwater lakes: J 51(2): 390

AQUATIC PLANTS

- acidity, buffers, checklists, Woods Lake, Adirondack Region, N.Y.: J 51(1): 20
- environmental surveys, littoral zone, check lists, Great Lakes: TF 1936
- freshwater fish, microhabitats, abundance, community composition, Okeechobee Lake, Fla.: J 51(12): 2873
- plant control, habitat, Ont.: MF 2236
- shoreline protection, coastal erosion, plant utilization: MF 2226
- trace elements, sediments, bioaccumulation, food webs: J 51(8): 1769

ARCTIC

- Atlantic walrus, heavy metals, selenium, bioaccumulation: J 51(2): 426
- marine mammals, anadromous fish, Arctic Archipelago, N.W.T., Yuk.: MF 2224
- white whale, distribution records, migrations, satellite communication, Arctic Archipelago: J 51(7): 1653

ASIA

- sockeye salmon, stock identification, enzymes, fishery management, population genetics, North America: J 51(Suppl. 1): 132

ATLANTIC OCEAN

- yellowfin tuna, fishery management, stock assessment, growth curves, biological age, length, mathematical models, east Atlantic ocean: J 51(3): 723

ATLANTIC PROVINCES CANADA

- Atlantic salmon, population genetics, phenotypic variations, Western Arm Brook, Newfoundland, Margaree River, N.S., Miramichi River, N.B.: J 51(6): 1322

ATYID

- atyid shrimp, sedimentation, bioturbation: J 51(6): 1443

AUSTRALIA

- jackass morwong, population genetics, stock identification, DNA, Tasmania, New Zealand: J 51(5): 1101

Bacillus thuringiensis var. *israelensis*- see BACTERIA

Bacillus thuringiensis var. *kurstaki*- see BACTERIA

BACTERIA

- acidification, dystrophic lakes, buffers, microbiology, freshwater lakes, Sweden: J 51(11): 2529
- Bacillus thuringiensis* var. *israelensis*, pesticides, benthos, Invertebrata, aquatic insects, Susquehanna River, Pa.: J 51(2): 295

BACTERIA continued

- Bacillus thuringiensis* var. *kurstaki*, bacteriocides, pollution effects, benthos: J 51(5): 1037
 brook trout, brown trout, rainbow trout, *Bacillus thuringiensis* var. *israelensis*, pesticides, toxicity tests: J 51(6): 1451
 phytoplankton, biological production, chlorophylls, primary production, heterotrophic organisms, Humboldt Lake, Sack.: J 51(10): 2219

BASS, STRIPED (*Morone saxatilis*)

- fish physiology, bioenergetics, swimming: J 51(7): 1528
 swimming, growth: J 51(7): 1519

BEAUFORT SEA

- chemical oceanography, physical oceanography, water temperature, hydrocarbons: DH 129
 freshwater organisms, marine organism, taxonomy, catalogues, check lists: DF 924
 least cisco, environmental effects, dispersion, winds, mathematical models: J 51(4): 890
 marine fish, fishery management, fishery development, feasibility studies, Amundsen Gulf: TF 1910
 pack ice, sea ice, ice drift, ice thickness, sonar: TH 151
 sea ice, ice forecasting, polar oceanography: TH 158
 zooplankton, seasonal distribution, biomass, abundance, check lists, DF 912, DF 922, DF 923

BEAVER, CANADIAN (*Castor canadensis*)

- water quality, aquatic mammals, ice cover, Catamaran Brook, Little Southwest Miramichi River, N.B.: TF 1986

BEHAVIOR

- brook trout, acidification, aluminium, mortality, rivers, Pa.: J 51(7): 1620
 brown shrimp, avoidance reactions, chemical pollutants, phenols: J 51(4): 784
 freshwater fish, predation, organism aggregations, avoidance reactions: J 51(8): 1832
 marine organisms, fish, reproductive behavior, imprinting, homing behavior: J 51(7): 1664
 pumpkinseed, reproductive behavior, bioenergetics: J 51(3): 490
 Salmonidae, fishery management, local movements, rivers, Wis., Colo.: J 51(11): 2626
 sea lamprey, temperature preference, fish physiology, behavioral responses, Arrhenius model: J 51(2): 253
 snow crab, reproductive behavior, sexual maturity, physiology, muscles: J 51(5): 1110
 sole, environmental effects, ambient noise, winds, orientation behavior: J 51(6): 1258
 Tanner crab, organism aggregations, reproductive behavior, Kodiak, AK.: J 51(6): 1273
 zebra mussel, colonization, geographical distribution, abundance, physicochemical properties, St. Lawrence River, Hudson River, Oneida Lake, N.Y.: J 51(5): 1024
 zebra mussel, population density, geographical distribution, colonization, mathematical models, Wis.: J 51(5): 1189

BENTHOS

- acidification, pollution effects, Experimental Lakes Area, Ont.: J 51(8): 1877

- Atlantic salmon, environmental impact, aquaculture effluents, N.B., ME.: TF 1949

- Bacillus thuringiensis* var. *kurstaki*, bacteriocides, pollution effects: J 51(5): 1037

- Crustacea, biological sampling, baseline studies, Lake Winnipeg, Man.: DF 928

- environmental impact, trawling, intertidal sedimentation, Fundy Bay, Minas Basin: J 51(3): 650

- Invertebrata, check lists, population number, biomass, Lake Erie: TF 2018

- Invertebrata, pollution effects, species diversity, acidification, littoral zone, freshwater lakes, Ont.: J 51(5): 1147

- Invertebrata, resource surveys, Lake Winnipeg, Man.: MF 2261

- yellow perch, growth, natural populations, enclosures, prediction, mathematical models: J 51(11): 2501

BERMUDA

- red hind, growth, otoliths, environmental factors, Puerto Rico: J 51(1): 133

BIOGEOGRAPHY

- northern redbelly dace, population genetics, Ont.: J 51(6): 1218

BLUEFISH (*Pomatomus saltatrix*)

- growth, feeding behavior, Northwest Atlantic Ocean: J 51(8): 1752

BLUEGILL (*Lepomis macrochirus*)

- cadmium, pollution effects, growth, sediments, Mississippi River: J 51(6): 1356

- gizzard shad, recruitment, prey selection, correlation analysis: J 51(4): 913

Bosminidae- see CLADOCERA**BRITISH COLUMBIA (PROVINCE) CANADA**

- antifouling substances, degradation, bioaccumulation, biota: TH 155

- Atlantic herring, Pacific herring, population genetics, cell organelles, DNA, fjords, Norway: J 51(Suppl. 1): 233

- chinook salmon, abundance, environmental impact, hydroelectric power, river engineering, Nechako River: J 51(4): 965

- chinook salmon, coho salmon, habitat, juvenile, stream flow rate, Kloiya Creek: J 51(7): 1644

- chinook salmon, fishery management, fishery surveys, escapement, Harrison River: MF 2200

- chinook salmon, indicator species, Harrison River: MF 2242

- chinook salmon, tagging, fish counters, hatcheries, Stamp River: MF 2255

- chinook salmon, migrations, residence time, Fraser River: J 51(5): 1139

- chinook salmon, population genetics, stock identification, cultured organisms, natural populations, DNA: J 51(Suppl. 1): 267

- chum salmon, population genetics, fishery management, stock identification, electrophoresis, Wash.: J 51(Suppl. 1): 65

- chum salmon, homing behavior, reproductive behavior, Vancouver Island: J 51(3): 577

SUBJECT INDEX/INDEX SUJET

- coho salmon, colonization, natural populations, hatcheries: TF 1933
- coho salmon, migrations, fishery management, Capilano River: MF 2118
- coho salmon, stock assessment, escapement, Salmon River: MF 2241
- coho salmon, tagging, escapement, survival, Salmon River: MF 2208
- current meter data, salinity, water temperature, time series, hovercraft, Fraser river: DH 126
- current meter data, water properties, sewage, Prince Rupert Horn, B.C.: TH 154
- demersal fisheries, salmon fisheries, sport fishing statistics, fishery management, North Vancouver, TF 1973, TF 1974
- demersal fisheries, stock assessment: TF 1975
- Pacific herring, Pacific salmon, environmental effects, river discharge, biological production, survival, Georgia Strait: J 51(12): 2843
- Pacific herring, roe fisheries, stock assessment: IF 218
- Pacific herring, stock assessment, prediction: TF 1971
- Pacific oyster, population genetics, DNA, introduced species: J 51(7): 1608
- Pacific salmon, fishery management, escapement, data processing, manuals: MF 2240
- Pacific sardine, fishery management, historical account, depleted stocks: J 51(2): 460
- pinto abalone, fishery management, stock assessment, fishery survey, Queen Charlotte Islands: MF 2166
- salmon, fishery management, governments, political aspects, fishery economics, resource conservation, fishery organization, world oceans: J 51(10): 2363
- salmon, gillnetters, catch/effort, mathematical models, Skeena River: MF 2256
- salmon, chinook, stock assessment, population number, escapement, Campbell River, Quinsam River: MF 2251
- salmon, chinook, Kitsumkalum River: MF 2249
- Salmonidae, hydrology, rivers, resource conservation, Fraser River basin: MF 2238
- sockeye salmon, fishery management, catchability, escapement, Skeena River: MF 2219
- sockeye salmon, fishery management, salmon fisheries, planning: J 51(9): 2115
- sockeye salmon, population genetics, fishery management, stock identification, genotypes: J 51(Suppl. 1): 114
- spawning grounds, Pacific salmon, geographical distribution: TF 1967
- vertical profiles, salinities, water temperature, current observations, Fraser River: DH 133
- watersheds, classification systems, resource conservation, Fraser River basin: MF 2234
- CANADA**
- sockeye salmon, stock identification, fishery management, population genetics, homing behavior, freshwater lakes, USA, Russia: J 51(Suppl. 1): 145
- sport fishing, economic analysis, sociological aspects, governments: EC 148
- Cancer irroratus*- see **CRAB, ATLANTIC ROCK**
- Cancer magister*- see **CRAB, DUNGENESS**
- CAPELIN** (*Mallotus villosus*)
- Atlantic herring, Atlantic mackerel, fishery industry, economic analysis, Que.: EC 130
- fish larvae, residence time, transport processes, mathematical models, Conception Bay, Newfoundland: J 51(6): 1297
- population dynamics, survival, biological age, sexual maturity, mathematical models, Grand Banks: J 51(3): 642
- Castor canadensis*- see **BEAVER, CANADIAN**
- Catostomus commersoni*- see **SUCKER, WHITE**
- CEPHALOPODA**
- tropical loliginid squid, growth, muscle: J 51(4): 830
- Chaoborus americanus*- see **INVERTEBRATA**
- CHAR, ARCTIC** (*Salvelinus alpinus*)
- bull trout, Dolly Varden, white spotted char, phylogenetics, evolution, population genetics, biological speciation: J 51(Suppl. 1): 180
- Dolly Varden, whitespotted char, bibliography: TF 1950
- ecological balance, ecosystems, long-term records, Gavia Lake, Nauyuk Lake, N.W.T.: J 51(1): 209
- fishery management, fish catch statistics, commercial fishing, rivers, Nunavut Settlement Area, N.W.T.: DF 910
- fishery management, migrations, tagging, anadromous species, Nauyuk Lake, N.W.T.: J 51(9): 1927
- population genetics, anadromous populations, growth, parasitism, lake morphology, Norway: J 51(6): 1229
- population genetics, DNA, genomes: J 51(Suppl. 1): 277
- population genetics, stock identification, DNA, resource conservation, Floods Pond, ME.: J 51(1): 62
- rainbow trout, diets, fatty acids, growth, lipids, metabolism: J 51(6): 1391
- CHAR, WHITESPOTTED** (*Salvelinus leucomaenis*)
- Arctic char, bull trout, Dolly Varden, phylogenetics, evolution, population genetics, biological speciation: J 51(Suppl. 1): 180
- Dolly Varden, bibliography: TF 1950
- Charr, Arctic- see **CHAR, ARCTIC**
- CHARS** (*Salvelinus* spp.)
- Japanese huchen, phylogenetics, taxonomy, organism morphology, karyology, hybridization: J 51(Suppl. 1): 196
- Chionoecetes bairdi*- see **CRAB, TANNER**
- Chionoecetes opilio*- see **CRAB, SNOW**
- CISCO, LEAST** (*Coregonus sardinella*)
- environmental effects, dispersion, winds, mathematical models, Beaufort Sea: J 51(4): 890
- CLADOCERA**
- Bosminidae, zooplankton, population genetics, species diversity, inland waters: J 51(4): 873
- chlorophylls, *Daphnia*, herbivores, thermal stratification, freshwater lakes: J 51(2): 390
- eutrophication, fossil assemblages, biostratigraphy, Experimental Lakes Area: J 51(10): 2312
- secondary production, phosphorus, mathematical model: J 51(5): 1055
- Clupea harengus*- see **HERRING, ATLANTIC**
- Clupea pallasii*- see **HERRING, PACIFIC**

COD, ATLANTIC (*Gadus morhua*)

- depleted stocks, resource management, recruitment, overexploitation, Labrador, Newfoundland: J 51(9): 2126
- environmental effects, habitat, geographical distribution, salinity, water depth, water temperature, Scotian Shelf: J 51(3): 589
- fecundity, recruitment, diets, spawning population: J 51(8): 1893
- feeding behavior, sulphur compounds, odour, Labrador, Newfoundland: J 51(4): 881
- fish culture, salinity, growth, food conversion: J 51(7): 1569
- fish larvae, survival, growth, comparative studies, Norway: J 51(5): 1012
- fishery management, population number, temporal variations, Trinity Bay, Newfoundland: J 51(1): 78
- fishery survey, bottom trawls, abundance, environmental factors, Scotian shelf, Georges Bank: TF 1958
- migrations, overwintering, Trinity Bay, Newfoundland: J 51(1): 142
- overwintering, blood, glycoproteins, fish physiology, coastal waters, Trinity Bay, Newfoundland: J 51(12): 2834
- stock identification, otoliths, spawning grounds, north Atlantic ocean: J 51(9): 1942
- trawlers, mesh selectivity: TF 1934

COELENTERATA

- sablefish, competition, population number, Vancouver Island: TF 1939

COLORADO (STATE) USA

- Salmonidae, fishery management, local movements, rivers, Wis.: J 51(11): 2626

COMPUTER PROGRAMS AND DATA PROCESSING

- acid rain, monitoring systems, data collection, Canada: TF 1987
- data processing, thermodynamics, chemical speciation, metals, fresh water: TF 1991
- Pacific salmon, fishery management, escapement, manuals, B.C.: MF 2240

CONFERENCES

- aquatic environments, toxicity, toxicants, Edmonton, Alta.: TF 1942
- demersal fisheries, fishery management, Scotia-Fundy: TF 1979
- fjords, marine ecology, toxicology, Saguenay Fjord: MF 2270F
- genetics, fishery sciences, freshwater fish, marine fish, shellfish, world subpolar regions: J 51(Suppl. 1): 1
- Invertebrata, underutilized species, fishery development, conferences, Northwest Atlantic Ocean: MF 2247
- marine environment, environmental impact, North Pacific Ocean: TF 1948
- toxicity, aquatic environment, toxicants, Canada: TF 1989

COPEPODA

- Hesperodiptomus*, Rotatoria, predation, plankton, enclosures: J 51(11): 2520

Coracinus capensis- see **GALJOEN**

Coregonus sardinella- see **CISCO, LEAST**

Coregonus spp.- see **WHITEFISH**

2898

CRAB, ARCTIC (*Hyas coarctatus*)

- Atlantic lyre crab, snow crab, exploratory fishery, potential resources, St. Lawrence Gulf, Gaspé Peninsula: TF 1996

CRAB, ATLANTIC LYRE (*Hyas araneus*)

- Arctic lyre crab, snow crab, exploratory fishery, potential resources, St. Lawrence Gulf, Gaspé Peninsula: TF 1996

CRAB, ATLANTIC ROCK (*Cancer irroratus*)

- distribution records, seasonal variations, Chaleur Bay, Anse-à-Beaufils: TF 2014F

CRAB, DUNGENESS (*Cancer magister*)

- bigeye tuna, fishery management, biological production, potential yield, mathematical models: J 51(8): 1823

CRAB, SNOW (*Chionoecetes opilio*)

- American lobster, stock assessment, trawlers, St. Lawrence Gulf: TF 1992
- Arctic lyre crab, Atlantic lyre crab, exploratory fishery, potential resources, St. Lawrence Gulf, Gaspé Peninsula: TF 1996
- crab fisheries, economic analysis, market research, Que.: EC 137
- environmental impact, trap nets, St. Lawrence Gulf, Bay of Chaleur: TF 1984
- fishery economics, crab fisheries, harvesting, licensing, fishery regulations, Newfoundland, Northwest Atlantic ocean: EC 119
- fishery management, catch/effort, population structure, exploitation, Cape Breton, N.S.: TF 2021
- live storage, marketing: IF 224F
- reproductive behavior, sexual maturity, physiology, muscles: J 51(5): 1110

CRAB, TANNER (*Chionoecetes bairdi*)

- organism aggregations, reproductive behavior, Kodiak, AK.: J 51(6): 1273

Crassostrea gigas- see **OYSTER, PACIFIC**

Crassostrea virginica- see **OYSTER, EASTERN**

CRUSTACEA- see also names of species

- benthos, biological sampling, baseline studies, Lake Winnipeg, Man.: DF 928
- blue endeavour prawns, growth, mathematical models: J 51(7): 1585
- distribution records, maps, bibliographies, plankton surveys, freshwater lakes, Canada: TF 1954
- northern shrimp, Mollusca, stock assessment, St. Lawrence Gulf, St. Lawrence Estuary, Que.: MF 2257F
- population dynamics, classification systems, sexual maturity, moulting, mathematical models: J 51(2): 408

Culaea inconstans- see **STICKLEBACK, BROOK**

CYPRINIDAE- see also names of species

- dace, bioenergetics, food consumption, metabolism, fish physiology, mathematical models: J 51(11): 2558

DACE, NORTHERN REDBELLY (*Phoxinus eos*)

- population genetics, biogeography, Ont.: J 51(6): 1218

Daphnia- see **CLADOCERA**

Delphinapterus leucas- see **WHALE, WHITE (beluga)**

DENMARK

phytoplankton, nutrients, physical limnology, trophic structure, freshwater lakes: J 51(8): 1692

DISEASES AND PARASITES

American plaice, *Haemohormidium terranova*, parasites, mortality, blood: J 51(4): 959

coho salmon, chinook salmon, *Chaetoceros concavicornis*, phytoplankton, biological poisons, mortality, fish disease: J 51(11): 2493

fish disease, manuals, shellfish culture, Canada: TF 1931

rainbow trout, fish culture, fish diseases, gills, skin, therapy, evaluation: J 51(8): 1728

sealworm, population dynamics, demersal fisheries, seals, Northwest Atlantic Ocean: MF 2260

DISTRIBUTION AND ABUNDANCE

Arctic char, ecological balance, ecosystems, long-term records, Gavia Lake, Nauyuk Lake, N.W.T.: J 51(1): 209

Atlantic cod, fishery management, catchability, geographical distribution, St. Lawrence Gulf: J 51(5): 1046

Atlantic cod, fishery management, population number, temporal variations, Trinity Bay, Newfoundland: J 51(1): 78

Atlantic rock crab, distribution records, seasonal variations, Chaleur Bay, Anse-à-Beaufils: TF 2014F

chinook salmon, abundance, environmental impact, hydroelectric power, river engineering, Nechako River, B.C.: J 51(4): 965

chum salmon, distribution records, tagging, North Pacific ocean: J 51(3): 501

chum salmon, population genetics, fishery management, stock identification, geographical distribution, AK., B.C.: J 51(Suppl. 1): 50

chum salmon, population genetics, fishery management, stock identification, geographical distribution, Russia: J 51(Suppl. 1): 84

Crustacea, distribution records, maps, bibliographies, plankton surveys, freshwater lakes, Canada: TF 1954

demersal fisheries, check lists, population numbers, distribution records, Scotian Shelf: TF 1953

demersal fisheries, environmental effects, stock assessment, geographical distribution, water depth, bottom temperature, Hecate Strait: J 51(6): 1401

freshwater fish, abundance, habitat, spatial variation, autocorrelation, data processing, Ont.: J 51(3): 701

haddock, demersal fisheries, abundance, geographical distribution, correlation analysis, Georges Bank: J 51(4): 808

Invertebrata, benthos, check lists, population number, biomass, Lake Erie: TF 2018

marine fish, stock assessment, community composition, vertical distribution, South Africa: J 51(1): 99

marine organisms, freshwater organisms, environmental effects, ice breakup, abundance, biological production, Great Whale River, Hudson Bay: J 51(11): 2467

northern shrimp, vertical distribution, trophic relationships, food webs, St. Lawrence Gulf: J 51(1): 123

Pacific halibut, fishery surveys, catch/effort, geographical distribution, mathematical models, Gulf of Alaska: J 51(7): 1506

plankton surveys, larvae, fish eggs, geographical distribution, St. Lawrence Gulf: TF 2019F

sockeye salmon, population number, cycles, harvesting, Fraser River, B.C.: J 51(8): 1839

spawning grounds, Pacific salmon, geographical distribution, B.C.: TF 1967

white whale, distribution records, migrations, satellite communication, Arctic Archipelago: J 51(7): 1653

zebra mussel, colonization, geographical distribution, abundance, physicochemical properties, St. Lawrence River, Hudson River, Oneida Lake, N.Y.: J 51(5): 1024

zebra mussel, larval settlement, abundance, artificial substrata, correlational analysis: J 51(4): 856

zebra mussel, population density, geographical distribution, colonization, mathematical models, Wis.: J 51(5): 1189

zooplankton, biomass, geographical distribution, fresh water runoff, advection, St. Lawrence Gulf: J 51(3): 617

DOLLY VARDEN (*Salvelinus malma*)

Arctic char, bull trout, white spotted char, phylogenetics, evolution, population genetics, biological speciation: J 51(Suppl. 1): 180

whitespotted char, bibliography: TF 1950

Dorosoma cepedianum- see SHAD, GIZZARD

Dreissena polymorpha- see MUSSEL, ZEBRA

DRUM, BLACK (*Pogonias cromis*)

red drum, red snapper, population genetics, DNA, cell organelles, stock identification, marine fish, Gulf of Mexico: J 51(Suppl. 1): 203

DRUM, RED (*Sciaenops ocellatus*)

black drum, red snapper, population genetics, DNA, cell organelles, stock identification, marine fish, Gulf of Mexico: J 51(Suppl. 1): 203

EAST PACIFIC OCEAN

yellowfin tuna, stock assessment, spatial variations, migrations, mathematical models: J 51(9): 2027

ECONOMICS AND SOCIOLOGY

American lobster, economic analysis, Que.: EC 126

fishery management, fishery economics, St. Lawrence Gulf, IF 223, IF 223F

Arctic lyre crab, Atlantic lyre crab, snow crab, exploratory fishery, potential resources, St. Lawrence Gulf, Gaspe Peninsula: TF 1996

Atlantic herring, Atlantic mackerel, capelin, fishery industry, economic analysis, Que.: EC 130

commercial fishing, fishery economics, Scotia-Fundy: EC 144

demersal fisheries, economic analysis, market research, Que.: EC 145

economic analysis, sport fishing statistics, Great Lakes: EC 142

fishery economics, fishing vessels, economic analysis, Newfoundland, northwest Atlantic ocean: EC 93

fishery industry, economic analysis, Que.: EC 127

trade, marketing, Que.: EC 140

fishery industry, landing statistics, fishermen, economic analysis, Que.: EC 133f

ECONOMICS AND SOCIOLOGY continued

- fishery statistics, fishery economics, fishery regulations, economic analysis, St. Lawrence Gulf: EC 136
- marine fish, fishery management, fishermen, fishing grounds, quota regulations, fishery economics, by catch, mathematical models: J 51(12): 2688
- northern shrimp, shrimp fisheries, economic analysis, Que.: EC 143
- pelagic environment, economic analysis, fishery economics, Que.: EC 139
- salmon, fishery management, governments, political aspects, fishery economics, resource conservation, fishery organization, world oceans, B.C.: J 51(10): 2363
- sea scallop, scallop culture, aquaculture techniques, economic analysis, Passamaquoddy Bay, N.B.: TF 2012
- snow crab, crab fisheries, economic analysis, market research, Que.: EC 137
- snow crab, fishery economics, crab fisheries, harvesting, licensing, fishery regulations, Newfoundland, Northwest Atlantic ocean: EC 119
- snow crab, live storage, marketing: IF 224F
- sport fishing, economic analysis, sociological aspects, governments, Canada: EC 148
- walleye pollock, fishery management, harvesting, risks, fishery economics, mathematical models, AK.: J 51(12): 2695
- walrus, hunting, economic analysis, sociological aspects, Foxe Basin, N.W.T.: TF 2011

ECOSYSTEMS

- Arctic char, ecological balance, long-term records, Gavia Lake, Nauyuk Lake, N.W.T.: J 51(1): 209
- ecological balance, energy flow, evolution: J 51(1): 226
- food webs, biomass, body size, pelagic environment, mathematical models, Lake Michigan, Lake Ontario: J 51(11): 2603
- food webs, trophic levels, resource management, Lake Michigan, Lake Ontario: J 51(11): 2568
- freshwater ecology, experimental research, environmental effects, man-induced effects, environmental monitoring, Experimental Lakes Area: J 51(12): 2721
- freshwater fish, bioenergetics, oxygen consumption, metabolism, swimming, videotape recordings: J 51(5): 1119
- freshwater fish, check lists, biomass, species diversity, littoral zone, freshwater lakes, Que.: J 51(5): 1128
- freshwater fish, littoral zone, ecosystem management, Great Lakes: J 51(8): 1804
- Invertebrata, Algae, food chains, aquatic plants, Man.: J 51(3): 681
- plankton, food webs, carbon cycle, freshwater lakes, Gogebic Country, Mich.: J 51(9): 2034
- plankton, nitrogen, carbon, energy flow, Smith Lake, AK.: J 51(6): 1338
- plankton, marine fish, trophodynamic cycle, food webs, biological production, mathematical models, Vancouver Island, B.C.: J 51(8): 1737
- trophic relationships, fish kill, eutrophic lakes, community composition, Christina Lake, Minn.: J 51(5): 1180

EEL, AMERICAN (*Anguilla rostrata*)

- chemical pollutants, bioaccumulation, spatial variation, temporal variation, St. Lawrence River estuary: J 51(2): 464
- diets, growth, temperature, effects: TF 2013
- recruitment, resource depletion, St. Lawrence Gulf, St. Lawrence River estuary: J 51(2): 479

EEL, EUROPEAN (*Anguilla anguilla*)

- growth, otoliths, marking analytical techniques, Camargue, France: J 51(3): 506

EGGS AND LARVAE

- Atlantic cod, fish larvae, survival, growth, comparative studies, Norway: J 51(5): 1012
- bluish whelk, sexual maturity, females, body size, fecundity, Saguenay Fjord, Que.: J 51(12): 2866
- capelin, fish larvae, residence time, transport processes, mathematical models, Conception Bay, Newfoundland: J 51(6): 1297
- chinook salmon, fish eggs, fish culture, sex hormones, aquaculture techniques: TF 1955
- eastern oyster, oyster fisheries, molluscan larvae, flushing, Caraquet Bay, N.B.: TF 1945
- northern brook lamprey, sea lamprey, feeding behavior, stomach content, selective feeding, detritus, fish larvae, Great Lakes basin: J 51(11): 2380
- Pacific herring, roe fisheries, stock assessment, B.C.: IF 218
- plankton surveys, larvae, fish eggs, geographical distribution, St. Lawrence Gulf: TF 2019F
- walleye, feeding behavior, prey selection, fish larvae: J 51(9): 2077
- whitefish, fish eggs, population dynamics, mortality, eutrophic lakes, environmental factors, Sempach Lake, Switzerland: J 51(9): 1908
- zebra mussel, larval settlement, abundance, artificial substrata, correlational analysis: J 51(4): 856

ENVIRONMENTAL EFFECTS

- acidification, pollution effects, benthos, Experimental Lakes Area, Ont.: J 51(8): 1877
- Atlantic herring, Pacific hake, surface temperature, predation, abundance, fishery management, mathematical models: J 51(12): 2665
- chinook salmon, coho salmon, rainbow trout, genetics, polyploids, saline water, biological fertilization, genetic abnormalities: J 51(Suppl. 1): 42
- freshwater fish, methyl mercury, wetlands, bioaccumulation, hydrology, correlational analysis: J 51(5): 1065
- least cisco, dispersion, winds, mathematical models, Beaufort Sea: J 51(4): 890
- marine fish, habitat, geographical distribution, salinity, water depth, water temperature, Scotian Shelf: J 51(3): 589
- marine organisms, freshwater organisms, ice breakup, abundance, biological production, Great Whale River, Hudson Bay: J 51(11): 2467
- Pacific herring, Pacific salmon, river discharge, biological production, survival, Georgia Strait, B.C.: J 51(12): 2843

SUBJECT INDEX/INDEX SUJET

- sea lamprey, temperature preference, fish physiology, behavioral responses, Arrhenius model: J 51(2): 253
- sediment transport, bed load, fire, watersheds, rivers, Experimental Lakes Area: J 51(12): 2723
- sockeye salmon, ocean currents, migrations, computer programs, North Pacific: J 51(2): 441
- sole, ambient noise, winds, orientation behavior: J 51(6): 1258
- zebra mussel, water temperature, turbidity, oxygen consumption, Ohio River, Ky.: J 51(1): 179

ENVIRONMENTAL IMPACT

- benthos, trawling, intertidal sedimentation, Fundy Bay, Minas Basin: J 51(3): 650
- chinook salmon, abundance, hydroelectric power, river engineering, Nechako River, B.C.: J 51(4): 965
- conferences, marine environment, North Pacific Ocean: TF 1948
- Eurasian perch, indicator species, pollution effects, pulp wastes, Sweden: J 51(10): 2195
- forest industry, rivers, morphometry, Wash.: J 51(1): 37
- freshwater fish, pipeline crossing, sediments, habitat, conferences, Canada: MF 2235
- phytoplankton, Salmonidae, stocking (organisms), biomass, freshwater lakes, Rocky Mountains: J 51(11): 2411
- phytoplankton, yellow perch, northern pike, trophic relationships, introduced species, nutrients (mineral), freshwater lakes, Experimental Lakes Area: J 51(12): 2794
- sediment pollution, heavy metals, environmental factors, freshwater lakes, mathematical models, Norway: J 51(8): 1708
- snow crab, trap nets, St. Lawrence Gulf, Bay of Chaleur: TF 1984

EPHEMEROPTERA

- mayflies, brook trout, avoidance reactions, predation: J 51(11): 2549

Epinephelus guttatus- see **HIND, RED**

Esox lucius- see **PIKE, NORTHERN**

EURASIA

- whitefish, phylogenetics, cell organelles, DNA, interglacial periods, North America: J 51(Suppl. 1): 240

EXPERIMENTAL LAKES AREA

- acidification, fertilizers, trace metals: DF 941
- acidification, pollution effects, benthos, Ont.: J 51(8): 1877
- Aphanizomenon schindleri*, Algae, new species, organism morphology, taxonomy: J 51(10): 2267
- chemical speciation, cadmium, pH, sediment-water interface, Ont.: J 51(9): 1951
- Cladocera, eutrophication, fossil assemblages, biostratigraphy: J 51(10): 2312
- eutrophication, pollution effects, sedimentary structures, biostratigraphy: J 51(10): 2300
- freshwater ecology, experimental research, environmental effects, man-induced effects, environmental monitoring: J 51(12): 2721
- geochronometry, coring, varves, biostratigraphy, eutrophication: J 51(10): 2274
- leeches, acidification, indicator species, Ont.: J 51(7): 1600
- limnological data, temperature profiles, water transparency, Ont.: DF 911

- nutrients (mineral), phosphorus, primary production, freshwater lakes: J 51(12): 2739
- nutrients (mineral), photosynthesis, phytoplankton, growth, freshwater lakes: J 51(12): 2784
- nutrients (mineral), phytoplankton, chlorophylls, spatial variations, freshwater lakes: J 51(12): 2769
- nutrients (mineral), stratification, summer, mixed layers, freshwater lakes: J 51(12): 2756
- palaeolimnology, eutrophication, fossil assemblages, biostratigraphy: J 51(10): 2322
- palaeolimnology, fossils, pigments, eutrophication, phytoplankton: J 51(10): 2286
- phytoplankton, algal blooms, Bacteria, eutrophication, nutrients (mineral): J 51(10): 2254
- phytoplankton, eutrophication, nutrients (mineral), experimental research: J 51(10): 2247
- phytoplankton, photosynthesis, biological sampling, ice-free periods, freshwater lakes: J 51(12): 2734
- phytoplankton, yellow perch, northern pike, trophic relationships, introduced species, environmental impact, nutrients (mineral), freshwater lakes: J 51(12): 2794
- pollution monitoring, eutrophication, nutrients (mineral), experimental research, lake reclamation: J 51(10): 2243
- sediment transport, bed load, fire, environmental effects, watersheds, rivers: J 51(12): 2723

FISH HANDLING

- American lobster, nutritive value, processed fishery products, human food, canned products, St. Lawrence Gulf: IF 225
- Pacific halibut, fishery data, mathematical model, quality control, trawl nets: J 51(2): 357
- snow crab, live storage, marketing: IF 224F

FISH PHYSIOLOGY

- Atlantic salmon, hormones, thyroid, olfactory organs, chemical stimuli: J 51(9): 1985

FISHERIES AND FISHABLE STOCKS

- American lobster, exploratory fishing, fishery development, commercial fishing, St. Lawrence Gulf, Gaspe Peninsula: TF 1980F
- Atlantic cod, fishery survey, bottom trawls, abundance, environmental factors, Scotian shelf, Georges Bank: TF 1958
- trawlers, mesh selectivity: TF 1934
- Atlantic herring, growth, body condition, length-weight relationships, correlational analysis, Northwest Atlantic Ocean: J 51(5): 1169
- Atlantic mackerel, fish catch statistics, foreign fishing, NAFO, international agreements, north Atlantic ocean: DF 947
- Atlantic salmon, fishery survey, population number, Pechora River Basin, Pizhma River, Russia: TF 2000
- black drum, red drum, red snapper, population genetics, DNA, cell organelles, stock identification, marine fish, Gulf of Mexico: J 51(Suppl. 1): 203
- chinook salmon, migrations, residence time, Fraser River, B.C.: J 51(5): 1139
- chinook salmon, population genetics, stock identification, cultured organisms, natural populations, DNA, B.C.: J 51(Suppl. 1): 267

FISHERIES AND FISHABLE STOCKS continued

- demersal fisheries, catching methods, longlining, Scotia-Fundy region: MF 2225
- demersal fisheries, check lists, population numbers, distribution records, Scotian Shelf: TF 1953
- demersal fisheries, feeding behavior, eutrophication, hypoxia, Sweden: J 51(2): 321
- demersal fisheries, research vessels, gear selectivity, St. Lawrence Gulf: TF 1952
- demersal fisheries, salmon fisheries, sport fishing statistics, fishery management, North Vancouver, B.C., TF 1973, TF 1974
- demersal fisheries, stock assessment, B.C.: TF 1975
- echo surveys, Canada: TF 1983
- fishery surveys, gillnets, catch composition, hydroelectric power plants, Snare River, N.W.T.: DF 930
- genetics, conferences, fishery sciences, freshwater fish, marine fish, shellfish, world subpolar regions: J 51(Suppl. 1): 1
- haddock, fishery survey, bottom trawls, abundance, environmental factors, Scotian shelf, Georges Bank: TF 1959
- Invertebrata, underutilized species, fishery development, conferences, Northwest Atlantic Ocean: MF 2247
- marine fish, fishery management, mortality, gear selectivity, quota regulations, stock assessment, mathematical models: J 51(12): 2654
- marine fish, fishery management, stock assessment, fishery data, numerical analysis, risks: J 51(12): 2640
- marine fish, freshwater fish, marine mammals, stock assessment, fish catch statistics, Nunavut Settlement Area, N.W.T.: MF 2262
- Pacific halibut, fishery surveys, catch/effort, geographical distribution, mathematical models, Gulf of Alaska: J 51(7): 1506
- Pacific salmon, population genetics, cell organelles, DNA, cultured organisms, natural populations: J 51(Suppl. 1): 290
- rainbow trout, fish physiology, electric fishing, fish handling, mortality: J 51(8): 1791
- swimming: J 51(8): 1799
- sockeye salmon, mathematical models, fishery management, fishing gear, B.C.: J 51(7): 1535
- walleye, reproduction, sexual maturity, bioenergetics, Lake Erie: J 51(5): 986

FISHERY MANAGEMENT

- American lobster, landing statistics, physical oceanography, water temperature, winds, habitat, N.S.: J 51(6): 1308
- American lobster, snow crab, stock assessment, trawlers, St. Lawrence Gulf: TF 1992
- anadromous species, catadromous species, fishery survey, Kouchibouguac Park, Black River, N.B.: DF 919
- annual reports, fishery policy, DFO, Canada: AR
- Arctic char, fish catch statistics, commercial fishing, rivers, Nunavut Settlement Area, N.W.T.: DF 910
- Arctic char, migrations, tagging, anadromous species, Nauyuk Lake, N.W.T.: J 51(9): 1927

- Arctic char, stock identification, DNA, resource conservation, Floods Pond, ME.: J 51(1): 62
- Arctic lyre crab, Atlantic lyre crab, snow crab, exploratory fishery, potential resources, St. Lawrence Gulf, Gaspe Peninsula: TF 1996
- Atlantic cod, catchability, geographical distribution, St. Lawrence Gulf: J 51(5): 1046
- Atlantic cod, depleted stocks, resource management, recruitment, overexploitation, Labrador, Newfoundland: J 51(9): 2126
- Atlantic cod, population number, temporal variations, Trinity Bay, Newfoundland: J 51(1): 78
- Atlantic herring, Pacific hake, surface temperature, predation, abundance, mathematical models: J 51(12): 2665
- Atlantic salmon, fish catch statistics, gillnets, Miramichi River, N.B.: IF 222
- Atlantic salmon, stock identification, otoliths, models: J 51(1): 91
- Atlantic salmon, survival, stocking density, fry, growth, White River, Vt.: J 51(10): 2164
- catch/effort, biological data, Greenland halibut, Baffin Island, Cumberland Sound, N.W.T.: TF 1924
- chinook salmon, fishery surveys, escapement, Harrison River, B.C.: MF 2200
- chinook salmon, fishery surveys, indicator species, Harrison River, B.C.: MF 2242
- chinook salmon, tagging, fish counters, hatcheries, Stamp River, B.C.: MF 2255
- chum salmon, population genetics, stock identification, electrophoresis, Wash., B.C.: J 51(Suppl. 1): 65
- chum salmon, population genetics, genomes, Japan Sea, Russia: J 51(Suppl. 1): 95
- chum salmon, population genetics, stock identification, geographical distribution, AK., B.C.: J 51(Suppl. 1): 50
- chum salmon, population genetics, stock identification, geographical distribution, AK., Russia: J 51(Suppl. 1): 84
- clam fisheries, stock assessment, Georgia Strait, Queen Charlotte Strait, B.C.: TF 1972
- coho salmon, migrations, Capilano River, B.C.: MF 2118
- coho salmon, stock assessment, escapement, Salmon River, B.C.: MF 2241
- coho salmon, stock assessment, tagging, escapement, survival, Salmon River, B.C.: MF 2208
- demersal fisheries, conferences, Scotia-Fundy: TF 1979
- demersal fisheries, environmental effects, stock assessment, geographical distribution, water depth, bottom temperature, Hecate Strait: J 51(6): 1401
- demersal fisheries, pelagic fisheries, stock assessment, St. Lawrence Gulf: MF 2244
- demersal fisheries, salmon fisheries, sport fishing statistics, North Vancouver, B.C., TF 1973, TF 1974
- demersal fisheries, stock assessment, B.C.: TF 1975
- demersal fisheries, stock assessment, echo surveys, Canada: TF 1983
- demersal fisheries, stock assessment, resource conservation, Canada: TF 1946

SUBJECT INDEX/INDEX SUJET

- dungeness crab, bigeye tuna, biological production, potential yield, mathematical models: J 51(8): 1823
- finfish fisheries, stock assessment, fishery resources, Que.: MF 2253
- finfish fisheries, stock assessment, population dynamics, mathematical models: J 51(3): 713
- finfish fisheries, stock assessment, Scotia-Fundy Region: MF 2252
- finfish fisheries, walleye, genetic drift, mathematical models, Red Lakes, Minn.: J 51(4): 774
- finfish fisheries, yellow perch, stock assessment, fishery data, potential yield, risks, mathematical analysis: J 51(4): 946
- finfish fisheries, yellowfin tuna, stock assessment, growth curves, biological age, length, mathematical models, Atlantic ocean: J 51(3): 723
- fish, marking, man-induced effects, bibliography: TF 1951
- fishery data, analytical errors, regression analysis: J 51(6): 1420
- flying squid, gillnetters, fish catch statistics, North Pacific: TF-8
- freshwater fish, fishery surveys, lake fisheries, fish catch statistics, Ont.: DF 921
- hoki, stock assessment, harvesting, parameters, fishery data, mathematical models, New Zealand: J 51(12): 2673
- lake trout, habitat, niches, dissolved oxygen, oxygen depletion, mathematical models: J 51(11): 2513
- marine fish, fishermen, fishing grounds, quota regulations, fishery economics, by catch, mathematical models: J 51(12): 2688
- marine fish, fishery development, feasibility studies, Amundsen Gulf, Beaufort Sea: TF 1910
- marine fish, fishery policy, risks, evaluation, mathematical models: J 51(12): 2705
- marine fish, freshwater fish, marine mammals, stock assessment, fish catch statistics, Nunavut Settlement Area, N.W.T.: MF 2262
- marine fish, mortality, gear selectivity, quota regulations, stock assessment, mathematical models: J 51(12): 2654
- marine fish, stock assessment, community composition, vertical distribution, South Africa: J 51(1): 99
- marine fish, stock assessment, fishery data, numerical analysis, risks: J 51(12): 2640
- marine fish, stock assessment, fishery policy, risks, evaluation, USA coasts: J 51(12): 2715
- marine fish, stock assessment, landing statistics, weight, mathematical analysis: J 51(11): 2537
- marine mammals, anadromous fish, Arctic Archipelago, N.W.T., Yuk.: MF 2224
- mathematical models, population dynamics, recruitment: J 51(7): 1462
- northern shrimp, Crustacea, Mollusca, stock assessment, St. Lawrence Gulf, St. Lawrence Estuary, Que.: MF 2257F
- orange roughy, hoki, stock assessment, approximation, accuracy, New Zealand: J 51(4): 817
- Pacific halibut, marking, body size, mortality, mathematical models: J 51(3): 734
- Pacific herring, roe fisheries, stock assessment, British Columbia: IF 218
- Pacific herring, stock assessment, prediction, B.C.: TF 1971
- Pacific salmon, escapement, counters, mathematical models: J 51(3): 552
- Pacific salmon, data processing, manuals, B.C.: MF 2240
- Pacific salmon, escapement, recruitment, harvesting, body size, mathematical models: J 51(3): 603
- Pacific sardine, historical account, depleted stocks, B.C.: J 51(2): 460
- pink salmon, genetics, natural populations, body size, sexual maturity, Auke Creek, AK.: J 51(Suppl. 1): 9
- pink salmon, stock identification, electrophoresis, population genetics, north Pacific Ocean, Russia: J 51(Suppl. 1): 156
- population dynamics, biological data, mathematical analysis: J 51(1): 110
- rainbow smelt, landing statistics, historical account, Chaleur Bay, N.B.: DF 933F
- remote sensing, renewable resources, evaluation: J 51(3): 743
- salmon, escapement, computer programs, manuals, Vancouver Island, Black Creek: TF 1932
- salmon, gillnetters, catch/effort, mathematical models, Skeena River, B.C.: MF 2256
- salmon, governments, political aspects, fishery economics, resource conservation, fishery organization, world oceans, B.C.: J 51(10): 2363
- salmon, chinook, population number, escapement, Campbell River, Quinsam River, B.C.: MF 2251
- salmon, chinook, stock assessment, population number, escapement, Kitsumkalum River, B.C.: MF 2249
- Salmonidae, local movements, rivers, Wis., Colo.: J 51(11): 2626
- sea scallop, common property resources, mathematical models, Georges Bank, North West Atlantic Ocean: J 51(4): 900
- sea scallop, scallop fisheries, stock assessment, historical account, Annapolis Basin, N.S.: MF 2230
- skipjack tuna, tagging, attracting techniques, local movements, Solomon Island: J 51(12): 2642
- snow crab, catch/effort, population structure, exploitation, Cape Breton, N.S.: TF 2021
- sockeye salmon, catchability, escapement, Skeena River, B.C.: MF 2219
- sockeye salmon, mathematical models, fishing gear, B.C.: J 51(7): 1535
- sockeye salmon, population genetics, stock identification, genotypes, B.C.: J 51(Suppl. 1): 114
- sockeye salmon, population number, cycles, harvesting, Fraser River, B.C.: J 51(8): 1839
- sockeye salmon, salmon fisheries, planning, B.C.: J 51(9): 2115
- sockeye salmon, stock identification, enzymes, population genetics, Asia, North America: J 51(Suppl. 1): 132
- sockeye salmon, stock identification, population genetics, homing behavior, freshwater lakes, Canada, USA, Russia: J 51(Suppl. 1): 145
- stock assessment, mathematical models, evaluation: J 51(8): 1676
- walleye pollock, harvesting, risks, fishery economics, mathematical models, AK.: J 51(12): 2695

FISHERY MANAGEMENT continued

- yellowfin tuna, stock assessment, spatial variations, migrations, mathematical models, east Pacific ocean: J 51(9): 2027

FISHES (general)

- demersal fisheries, environmental effects, stock assessment, geographical distribution, water depth, bottom temperature, Hecate Strait: J 51(6): 1401
- demersal fisheries, fishery management, stock assessment, resource conservation, Canada: TF 1946
- freshwater fish, bioenergetics, oxygen consumption, metabolism, swimming, videotape recordings: J 51(5): 1119
- freshwater fish, check lists, biomass, species diversity, littoral zone, freshwater lakes: J 51(5): 1128
- freshwater fish, growth, water temperature, mathematical models, Tjeukemeer Lake, Netherlands: J 51(3): 516
- freshwater fish, microhabitats, aquatic plants, abundance, community composition, Okeechobee Lake, Fla.: J 51(12): 2873
- freshwater fish, predation, organism aggregations, avoidance reactions: J 51(8): 1832
- genetics, polyploids, chromosomes, bibliographies: TF 1901
- growth, tagging, mathematical models: J 51(8): 1689
- Mammalia, marine fish, population genetics, DNA, comparative studies: J 51(9): 1959
- marine fish, age determination, methodology, otoliths: J 51(10): 2333
- marine fish, fishery management, fishermen, fishing grounds, quota regulations, fishery economics, by catch, mathematical models: J 51(12): 2688
- marine fish, fishery management, fishery policy, risks, evaluation, mathematical models: J 51(12): 2705
- marine fish, fishery management, stock assessment, fishery policy, risks, evaluation, USA coasts: J 51(12): 2715
- marine fish, fishery management, landing statistics, weight, mathematical analysis: J 51(11): 2537
- marine fish, freshwater fish, bioaccumulation, radioisotopes, caesium, physicochemical properties, trophic structure: J 51(11): 2388
- marine organisms, reproductive behavior, imprinting, homing behavior: J 51(7): 1664
- stock identification, DNA, mathematical models: J 51(2): 417

FLORIDA (STATE) USA

- freshwater fish, microhabitats, aquatic plants, abundance, community composition, Okeechobee Lake: J 51(12): 2873

FLOUNDER, WINTER (*Pleuronectes americanus*)

- bioaccumulation, chemical pollutants, cytochromes, North Atlantic Ocean: J 51(4): 933
- pollution effects, enzymatic activity, aromatic hydrocarbons, sediments, Sydney estuary, N.S.: J 51(6): 1368
- pulp wastes, pollution effects, indicator species, fish physiology, St. George's Bay, Newfoundland: J 51(10): 2203

FLOUNDER, YELLOWTAIL (*Pleuronectes ferrugineus*)

- environmental effects, habitat, geographical distribution, salinity, water depth, water temperature, Scotian Shelf: J 51(3): 589

FOOD AND FEEDING

- American eel, diets, growth, temperature, effects: TF 2013
- aquatic insects, feeding behavior, grazing mayflies, periodicity: J 51(2): 450
- Arctic char, rainbow trout, diets, fatty acids, growth, lipids, metabolism: J 51(6): 1391
- Atlantic cod, fecundity, recruitment, diets, spawning population: J 51(8): 1893
- Atlantic cod, feeding behavior, sulphur compounds, odour, Labrador, Newfoundland: J 51(4): 881
- Atlantic halibut, phytoplankton, feeding experiments, intestines, fish culture: J 51(8): 1899
- Atlantic salmon, diets, iron: J 51(2): 315
- bluefish, growth, feeding behavior, Northwest Atlantic Ocean: J 51(8): 1752
- brook trout, feeding behavior, multivariate analysis, biotic factors, abiotic factors, spatial variations, freshwater lakes, Laurentian Shield, Que.: J 51(12): 2856
- brook trout, feeding behavior, prey selection, local movements, water column: J 51(2): 268
- chinook salmon, swimming, growth, thyroid, diets: J 51(9): 1975
- dace, bioenergetics, food consumption, metabolism, fish physiology, mathematical models: J 51(11): 2558
- demersal fisheries, feeding behavior, eutrophication, hypoxia, Sweden: J 51(2): 321
- fathead minnow, brook stickleback, competition, feeding behavior, organism morphology, turbidity: J 51(7): 1629
- harbour porpoise, feeding behavior, summer, St. Lawrence Gulf, St. Lawrence estuary: J 51(1): 172
- lake trout, bioaccumulation, mercury, trophic structure, food chains, freshwater lakes: J 51(2): 381
- northern brook lamprey, sea lamprey, feeding behavior, stomach content, selective feeding, detritus, fish larvae, Great Lakes basin: J 51(11): 2380
- northern shrimp, vertical distribution, trophic relationships, food webs, St. Lawrence Gulf: J 51(1): 123
- northern squawfish, Pacific salmon, feeding behavior, prey selection, Bonneville Dam, Columbia River, Oreg.: J 51(5): 1197
- saugye, growth, feeding behavior, fish larvae: J 51(9): 1993
- Simuliidae, aquatic insects, ingestion, insect larvae, current velocity, Que.: J 51(7): 1615
- walleye, feeding behavior, prey selection, fish larvae: J 51(9): 2077

FRANCE

- European eel, growth, otoliths, marking analytical techniques, Camargue: J 51(3): 506

Gadus morhua* - see COD, ATLANTIC*GALJOEN (*Coracinus capensis*)**

- population genetics, biopolymorphism, dispersion, mathematical models, De Hoop Marine Reserve, South Africa: J 51(6): 1247

SUBJECT INDEX/INDEX SUJET

Gammarus fasciatus- see AMPHIPODA

GENETICS

- Arctic char, bull trout, Dolly Varden, white spotted char, phylogenetics, evolution, population genetics, biological speciation: J 51(Suppl. 1): 180
- Arctic char, population genetics, anadromous populations, growth, parasitism, lake morphology, Norway: J 51(6): 1229
- Arctic char, population genetics, DNA, genomes: J 51(Suppl. 1): 277
- Arctic char, stock identification, DNA, resource conservation, Floods Pond, ME.: J 51(1): 62
- Atlantic cod, stock identification, otoliths, spawning grounds, north Atlantic ocean: J 51(9): 1942
- Atlantic herring, Pacific herring, population genetics, cell organelles, DNA, fjords, Norway, B.C.: J 51(Suppl. 1): 233
- Atlantic salmon, brown trout, growth, survival, polyploids, hybrids: J 51(Suppl. 1): 16
- Atlantic salmon, population genetics, electrophoresis, transplantation, Esva River, Spain: J 51(2): 248
- Atlantic salmon, population genetics, phenotypic variations, Western Arm Brook, Newfoundland, Margaree River, N.S., Miramichi River, N.B.: J 51(6): 1322
- Atlantic salmon, stock identification, otoliths, fishery management, models: J 51(1): 91
- black drum, red drum, red snapper, population genetics, DNA, cell organelles, stock identification, marine fish, Gulf of Mexico: J 51(Suppl. 1): 203
- Bosminidae, zooplankton, population genetics, species diversity, inland waters: J 51(4): 873
- chinook salmon, chum salmon, pink salmon, polyploids, hybridization, survival, salinity tolerance: J 51(Suppl. 1): 25
- chinook salmon, coho salmon, polyploids, hybrids, survival, growth: J 51(Suppl. 1): 31
- chinook salmon, coho salmon, rainbow trout, polyploids, saline water, biological fertilization, genetic abnormalities: J 51(Suppl. 1): 42
- chinook salmon, population genetics, stock identification, cell organelles, DNA, Kenai River, Kasilof River, AK.: J 51(Suppl. 1): 170
- chinook salmon, population genetics, stock identification, cultured organisms, natural populations, DNA, B.C.: J 51(Suppl. 1): 267
- chum salmon, population genetics, fishery management, stock identification, electrophoresis, Wash., B.C.: J 51(Suppl. 1): 65
- chum salmon, population genetics, fishery management, stock identification, genomes, Japan Sea, Russia: J 51(Suppl. 1): 95
- chum salmon, population genetics, fishery management, stock identification, geographical distribution, AK., B.C.: J 51(Suppl. 1): 50
- chum salmon, population genetics, fishery management, stock identification, geographical distribution, AK., Russia: J 51(Suppl. 1): 84
- chum salmon, population genetics, homing behavior, reproductive behavior, Vancouver Island, B.C.: J 51(3): 577
- chum salmon, stock identification, DNA, population structure, North Pacific Ocean: J 51(6): 1430
- coelacanth, gray bichir, marbled lungfish, South African lungfish, sterlet, phylogenetics, comparative studies: J 51(6): 1265
- conferences, fishery sciences, freshwater fish, marine fish, shellfish, world subpolar regions: J 51(Suppl. 1): 1
- cutthroat trout, life history, phenotypic variations, temporal variations, spatial variations, population genetics, Yellowstone Lake, Wyo.: J 51(Suppl. 1): 298
- eastern oyster, stock identification, population genetic, enzymes, proteins, Laguna Madre, Tex.: J 51(Suppl. 1): 215
- evolution, molecular structure, population genetics, biological speciation, natural selection: J 51(Suppl. 1): 4
- galjoen, population genetics, biopolymorphism, dispersion, mathematical models, De Hoop Marine Reserve, South Africa: J 51(6): 1247
- jackass morwong, population genetics, stock identification, DNA, Tasmania, Australia, New Zealand: J 51(5): 1101
- Mammalia, marine fish, population genetics, DNA, comparative studies: J 51(9): 1959
- northern redbelly dace, population genetics, biogeography, Ont.: J 51(6): 1218
- opossum shrimp, stock identification, electrophoresis, North America, Europe: J 51(7): 1490
- Pacific oyster, population genetics, DNA, introduced species, B.C.: J 51(7): 1608
- Pacific salmon, DNA, histochemistry, polyploids, hybridization: J 51(Suppl. 1): 38
- Pacific salmon, pink salmon, population genetics, genetic drift, migrations: J 51(Suppl. 1): 223
- Pacific salmon, population genetics, brood stocks, hatcheries, inbreeding, natural populations: J 51(Suppl. 1): 310
- Pacific salmon, population genetics, cell organelles, DNA, cultured organisms, natural populations: J 51(Suppl. 1): 290
- pink salmon, fishery management, natural populations, body size, sexual maturity, Auke Creek, AK.: J 51(Suppl. 1): 9
- pink salmon, stock identification, electrophoresis, population genetics, fishery management, north Pacific Ocean, Russia: J 51(Suppl. 1): 156
- quagga mussel, population genetics, taxonomy, stock identification, organism morphology, Great Lakes: J 51(7): 1485
- rainbow trout, cell organelles, DNA, spawning populations, cultured organisms, natural populations, Ont.: J 51(Suppl. 1): 284
- rainbow trout, population genetics, DNA, nucleotides: J 51(Suppl. 1): 252
- Salmonidae, population genetics, DNA, clones, genomes: J 51(Suppl. 1): 258
- Salvelinus* spp., Japanese huchen, phylogenetics, taxonomy, organism morphology, karyology, hybridization: J 51(Suppl. 1): 196

GENETICS continued

- sockeye salmon, population genetics, fishery management, stock identification, genotypes, B.C.: J 51(Suppl. 1): 114
- sockeye salmon, stock identification, enzymes, fishery management, population genetics, Asia, North America: J 51(Suppl. 1): 132
- sockeye salmon, stock identification, fishery management, population genetics, homing behavior, freshwater lakes, Canada, USA, Russia: J 51(Suppl. 1): 145
- sockeye salmon, stock identification, otoliths, chemical analysis, microscopy, Redfish Lake, Id.: J 51(1): 68
- stock identification, DNA, fish, mathematical models: J 51(2): 417
- striped marlin, stock identification, population genetics, DNA, cell organelles, South Pacific Ocean: J 51(8): 1762
- whitefish, phylogenetics, cell organelles, DNA, interglacial periods, Eurasia, North America: J 51(Suppl. 1): 240

GRAND BANKS

- capelin, population dynamics, survival, biological age, sexual maturity, mathematical models: J 51(3): 642

GRAYLING, ARCTIC (*Thymallus arcticus*)

- competition, habitat selection, body size: J 51(10): 2154

GREAT LAKES NORTH AMERICA

- aquatic plants, environmental surveys, littoral zone, check lists: TF 1936
- coho salmon, chinook salmon, PCB, bioaccumulation, mathematical models, Michigan Lake: J 51(6): 1384
- eutrophication, phosphorus, nutrients (mineral), biomass, Lake Michigan, Lake Ontario: J 51(11): 2570
- eutrophication, phosphorus, photosynthesis, light absorption, Lake Michigan, Lake Ontario: J 51(11): 2579
- food webs, biomass, body size, pelagic environment, mathematical models, Lake Michigan, Lake Ontario: J 51(11): 2603
- food webs, trophic levels, ecosystems, resource management, Lake Michigan, Lake Ontario: J 51(11): 2568
- freshwater fish, life history, feeding behavior, organism morphology: MF 2209
- freshwater fish, littoral zone, ecosystem management: J 51(8): 1804
- freshwater fish, pollution effects, habitat, degradation: TF 1941
- Invertebrata, benthos, check lists, population number, biomass, Lake Erie: TF 2018
- lake trout, sea lamprey, predation, species extinction, mathematical models: J 51(4): 942
- northern brook lamprey, sea lamprey, feeding behavior, stomach content, selective feeding, detritus, fish larvae, Great Lakes basin: J 51(11): 2380
- opossum shrimp, zooplankton, freshwater fish, interspecific relationships, competition, prey selection, Lake Michigan, Lake Ontario: J 51(11): 2591
- quagga mussel, population genetics, taxonomy, stock identification, organism morphology: J 51(7): 1485

- rainbow trout, lake trout, polychlorinated biphenyls, mathematical models, bioaccumulation, comparative studies, Michigan Lake: J 51(4): 800
- sport fishing statistics, economic analysis: EC 142
- walleye, reproduction, sexual maturity, bioenergetics, Lake Erie: J 51(5): 986
- zebra mussel, Mollusca, Pelecypoda, fouling organisms, biological damage, Lake Erie: J 51(10): 2234

HABITAT

- Arctic grayling, competition, habitat selection, body size: J 51(10): 2154
- chinook salmon, coho salmon, juvenile, stream flow rate, Kloiya Creek, B.C.: J 51(7): 1644
- environmental impact, forest industry, rivers, morphometry, Wash.: J 51(1): 37
- freshwater fish, abundance, spatial variation, autocorrelation, data processing, Ont.: J 51(3): 701
- freshwater fish, littoral zone, ecosystem management, Great Lakes: J 51(8): 1804
- freshwater fish, microhabitats, aquatic plants, abundance, community composition, Okeechobee Lake, Fla.: J 51(12): 2873
- lake trout, fishery management, niches, dissolved oxygen, oxygen depletion, mathematical models: J 51(11): 2513
- lake trout, spawning populations: TF 1962
- lake whitefish, northern pike, lake trout, walleye, bibliographic information, biological production, littoral zone: TF 1970
- stream flow, methodology, Maritime Provinces, Newfoundland: DF 946
- watersheds, classification systems, resource conservation, Fraser River basin, B.C.: MF 2234

HADDOCK (*Melanogrammus aeglefinus*)

- demersal fisheries, abundance, geographical distribution, correlation analysis, Georges Bank: J 51(4): 808
- environmental effects, habitat, geographical distribution, salinity, water depth, water temperature, Scotian Shelf: J 51(3): 589
- fishery survey, bottom trawls, abundance, environmental factors, Scotian shelf, Georges Bank: TF 1959

Haemohormidium terranova- see PROTOZOAHAKE, PACIFIC (*Merluccius productus*)

- Atlantic herring, environmental effects, predation, abundance, fishery management, mathematical models: J 51(12): 2665

HAKE, SILVER (*Merluccius bilinearis*)

- environmental effects, habitat, geographical distribution, salinity, water depth, water temperature, Scotian Shelf: J 51(3): 589

HALIBUT, ATLANTIC (*Hippoglossus hippoglossus*)

- fish physiology, sexual maturity, proteins: J 51(8): 1700
- phytoplankton, feeding experiments, intestines, fish culture: J 51(8): 1899

HALIBUT, GREENLAND (*Reinhardtius hippoglossoides*)

- catch/effort, biological data, Baffin Island, Cumberland Sound, N.W.T.: TF 1924

HALIBUT, PACIFIC (*Hippoglossus stenolepis*)

SUBJECT INDEX/INDEX SUJET

- fish handling, fishery data, mathematical model, quality control, trawl nets: J 51(2): 357
- fishery management, marking, body size, mortality, mathematical models: J 51(3): 734
- fishery surveys, catch/effort, geographical distribution, mathematical models, Gulf of Alaska: J 51(7): 1506
- Halichoerus grypus*- see **SEAL, GREY**
- Haliotis kamtschatkana*- see **ABALONE, PINTO**
- HERRING, ATLANTIC** (*Clupea harengus*)
- Atlantic mackerel, capelin, fishery industry, economic analysis, Que.: EC 130
- growth, body condition, length-weight relationships, correlational analysis, Northwest Atlantic Ocean: J 51(5): 1169
- Pacific herring, population genetics, cell organelles, DNA, fjords, Norway, B.C.: J 51(Suppl. 1): 233
- HERRING, ATLANTIC** (*Clupea pallasii*)
- Pacific hake, environmental effects, predation, abundance, fishery management, mathematical models: J 51(12): 2665
- HERRING, BLUEBACK** (*Alosa aestivalis*)
- alewife, homing behavior, tagging, anadromous migrations, Saint John River, N.B.: TF 2015
- HERRING, PACIFIC** (*Clupea pallasii*)
- Atlantic herring, population genetics, cell organelles, DNA, fjords, Norway, B.C.: J 51(Suppl. 1): 233
- Pacific salmon, environmental effects, river discharge, biological production, survival, Georgia Strait, B.C.: J 51(12): 2843
- roe fisheries, stock assessment, B.C.: IF 218
- stock assessment, prediction, B.C.: TF 1971
- HIND, RED** (*Epinephelus guttatus*)
- growth, otoliths, environmental factors, Bermuda, Puerto Rico: J 51(1): 133
- Hippoglossoides platessoides*- see **PLAICE, AMERICAN**
- Hippoglossus hippoglossus*- see **HALIBUT, ATLANTIC**
- Hippoglossus stenolepis*- see **HALIBUT, PACIFIC**
- HIRUDINEA** (leeches)
- acidification, indicator species, Experimental Lakes Area, Ont.: J 51(7): 1600
- HISTORICAL ACCOUNT**
- chemical pollutants, trace metals, nutrients, St. Lawrence River: J 51(5): 1088
- Pacific sardine, fishery management, depleted stocks, B.C.: J 51(2): 460
- HOKI** (*Macruronus novaezelandiae*)
- fishery management, stock assessment, harvesting, parameters, fishery data, mathematical models, New Zealand: J 51(12): 2673
- orange roughy, fishery management, stock assessment, approximation, accuracy, New Zealand: J 51(4): 817
- Homarus americanus*- see **LOBSTER, AMERICAN**
- Hoplostethus atlanticus*- see **ROUGHY, ORANGE**
- HUCHEN, JAPANESE** (*Hucho perryi*)
- Salvelinus* spp., phylogenetics, taxonomy, organism morphology, karyology, hybridization: J 51(Suppl. 1): 196
- Hucho perryi*- see **HUCHEN, JAPANESE**

HUDSON BAY, CANADA

- marine organisms, freshwater organisms, environmental effects, ice breakup, abundance, biological production, Great Whale River: J 51(11): 2467
- oceanographic data, water temperature, salinity, current meter data, tidal analysis, water density: DH 132
- Hyas araneus*- see **CRAB, ATLANTIC LYRE**
- Hyas coarctatus*- see **CRAB, ARCTIC LYRE**

HYDROLOGY

- freshwater fish, methyl mercury, wetlands, bioaccumulation, environmental factors, correlational analysis: J 51(5): 1065

Ichthyomyzon fossor- see LAMPREY, NORTHERN BROOK

IDAHO (STATE) USA

- sockeye salmon, stock identification, otoliths, chemical analysis, microscopy, Redfish Lake: J 51(1): 68

INFORMATION SERVICES

- Arctic char, Dolly Varden, whitespotted char, bibliography: TF 1950
- bibliographic information, research institutions, scientific personnel, DFO, Moncton, N.B.: MF 2258
- Crustacea, distribution records, maps, bibliographies, plankton surveys, freshwater lakes, Canada: TF 1954
- documents, aquatic sciences, libraries, cost analysis, Canada: MF 2243
- fish, bibliography, fishery management, marking, man-induced effects: TF 1951
- lake whitefish, northern pike, lake trout, walleye, bibliographic information, biological production, littoral zone: TF 1970
- plankton surveys, oceanographic data, water temperature, salinity, manuals, B.C.: TF 1976

INLAND WATERS

- Crustacea, distribution records, maps, bibliographies, plankton surveys, freshwater lakes, Canada: TF 1954
- forest industry, environmental impact, rivers, morphometry, Wash.: J 51(1): 37
- Invertebrata, pollution effects, chlorine compounds, sediments, long-term records, fresh water lakes, Alta.: J 51(4): 923
- pollution monitoring, eutrophication, nutrients (mineral), experimental research, lake reclamation, Experimental Lakes Area: J 51(10): 2243
- sedimentation, carbon, nitrogen, phosphorus, nutrient cycle, freshwater lakes, Wis.: J 51(11): 2457
- sockeye salmon, stock identification, fishery management, population genetics, homing behavior, freshwater lakes, Canada, USA, Russia: J 51(Suppl. 1): 145
- zooplankton, community composition, species diversity, morphometry, freshwater lakes, Ont.: J 51(11): 2424
- zooplankton, indicator species, environmental conditions, trophic, freshwater lakes, New England: J 51(11): 2435

INTRODUCED SPECIES

- phytoplankton, ballast tanks, environmental impact, aquaculture, Canada: DF 937
- phytoplankton, yellow perch, northern pike, trophic relationships, environmental impact, nutrients (mineral), freshwater lakes, Experimental Lakes Area: J 51(12): 2794

INTRODUCED SPECIES continued

zebra mussel, water temperature, turbidity, oxygen consumption, Ohio River, Ky.: J 51(1): 179

INVERTEBRATA - see also names of organisms

Algae, ecosystems, food chains, aquatic plants, Man.: J 51(3): 681

benthos, check lists, population number, biomass, Lake Erie: TF 2018

resource surveys, Lake Winnipeg, Man.: MF 2261

Chaoborus, indicator species, fossils, natural populations, freshwater lakes, freshwater fish, Alta.: J 51(6): 1376

freshwater fish, bioaccumulation, chemical pollutants, bioenergetics, Lake Ontario: J 51(3): 693

pollution effects, chlorine compounds, sediments, long-term records, fresh water lakes, Alta.: J 51(4): 923

trophic structure, food webs, carbon isotopes, Que.: J 51(1): 52

underutilized species, fishery development, conferences, Northwest Atlantic Ocean: MF 2247

JAPAN SEA

chum salmon, population genetics, fishery management, stock identification, genomes, Russia: J 51(Suppl. 1): 95

Katsuwonus pelamis - see **TUNA, SKIPJACK****KENTUCKY (STATE) USA**

zebra mussel, water temperature, turbidity, oxygen consumption, Ohio River: J 51(1): 179

zooplankton, dams, seasonal variation, tributaries, Ohio River: J 51(7): 1634

LAKE, TROUT (*Salvelinus namaycush*)

fishery management, habitat, niches, dissolved oxygen, oxygen depletion, mathematical models: J 51(11): 2513

LAMPREY, NORTHERN BROOK (*Ichthyomyzon fossor*)

sea lamprey, feeding behavior, stomach content, selective feeding, detritus, fish larvae, Great Lakes basin: J 51(11): 2380

LAMPREY, SEA (*Petromyzon marinus*)

environmental effects, temperature preference, fish physiology, behavioral responses, Arrhenius model: J 51(2): 253

lake trout, predation, species extinction, mathematical models, Great Lakes: J 51(4): 942

life cycle, metamorphosis, water temperature, photoperiod, food availability: J 51(9): 2045

northern brook lamprey, feeding behavior, stomach content, selective feeding, detritus, fish larvae, Great Lakes basin: J 51(11): 2380

Leeches - see **HIRUDINEA***Lepomis gibbosus* - see **PUMPKINSEED***Lepomis macrochirus* - see **BLUEGILL***Lepomis* spp. - see **SUNFISH****LIMNOLOGY**

Aphanizomenon flos-aquae, *Ceratium hirundinella*, *Cryptomonas erosa*, *Microcystis aeruginosa*, recruitment, vertical migrations, algal blooms, eutrophic lakes, Wis.: J 51(12): 2825

Bacillariophyceae, conferences, diatom, taxonomy, data collections, polar zone: TF 1957

Chaoborus, indicator species, fossils, natural populations, freshwater lakes, freshwater fish, Alta.: J 51(6): 1376

chemical limnology, dissolved oxygen, primary production, diurnal variations, rivers: J 51(7): 1591

chemical limnology, phosphorus, stratification, sedimentation, freshwater lakes, Ont.: J 51(6): 1330

chlorophylls, *Daphnia*, herbivores, thermal stratification, freshwater lakes: J 51(2): 390

current meter data, salinity, water temperature, time series, hovercraft, Fraser river, B.C.: DH 126

freshwater ecology, experimental research, environmental effects, man-induced effects, environmental monitoring, Experimental Lakes Area: J 51(12): 2721

habitat, physical limnology, stream flow, methodology, Maritime Provinces, Newfoundland: DF 946

limnological data, temperature profiles, water transparency, Experimental Lakes Area, Ont.: DF 911

nutrients (mineral), phosphorus, primary production, freshwater lakes, Experimental Lakes Area: J 51(12): 2739

nutrients (mineral), photosynthesis, phytoplankton, growth, freshwater lakes, Experimental Lakes Area: J 51(12): 2784

nutrients (mineral), phytoplankton, chlorophylls, spatial variations, freshwater lakes, Experimental Lakes Area: J 51(12): 2769

nutrients (mineral), stratification, summer, mixed layers, freshwater lakes, Experimental Lakes Area: J 51(12): 2756

palaeolimnology, eutrophication, fossil assemblages, biostratigraphy, Experimental Lakes Area: J 51(10): 2322

palaeolimnology, fossils, pigments, eutrophication, phytoplankton, Experimental Lakes Area: J 51(10): 2286

phytoplankton, yellow perch, northern pike, trophic relationships, introduced species, environmental impact, nutrients (mineral), freshwater lakes, Experimental Lakes Area: J 51(12): 2794

Salmonidae, hydrology, rivers, resource conservation, Fraser River basin, B.C.: MF 2238

sediment transport, bed load, fire, environmental effects, watersheds, rivers, Experimental Lakes Area: J 51(12): 2723

trophic relationships, fish kill, eutrophic lakes, community composition, Christina Lake, Minn.: J 51(5): 1180

water temperature, monitoring, long-term records, temperature data, Newfoundland: DH 124

LOBSTER, AMERICAN (*Homarus americanus*)

growth, mathematical models, RNA, DNA, water temperature: J 51(2): 286

bioaccumulation, harbours, aromatic hydrocarbons, Maritime Provinces: TF 1960

economic analysis, Que.: EC 126

exploratory fishing, fishery development, commercial fishing, St. Lawrence Gulf, Gaspé Peninsula: TF 1980F

SUBJECT INDEX/INDEX SUJET

- fishery management, fishery economics, St. Lawrence Gulf, IF 223, IF 223F
- landing statistics, physical oceanography, water temperature, winds, habitat, N.S.: J 51(6): 1308
- moulting, cuticles, dimensions, physiology: J 51(8): 1774
- nutritive value, processed fishery products, human food, canned products, St. Lawrence Gulf: IF 225
- snow crab, stock assessment, trawlers, St. Lawrence Gulf: TF 1992
- Lutjanus campechanus*- see **SNAPPER, RED**
- MACKEREL, ATLANTIC** (*Scomber scombrus*)
- Atlantic herring, capelin, fishery industry, economic analysis, Que.: EC 130
- fats, body size, seasonal variation, St. Lawrence Gulf: IF 220
- fish catch statistics, foreign fishing, NAFO, international agreements, north Atlantic ocean: DF 947
- Macruronus novaezelandiae*- see **HOKI**
- MAGDALEN ISLAND**
- blue mussel, aquaculture, mollusc culture, fishery management: IF 221
- MAINE (STATE) USA**
- Arctic char, stock identification, DNA, resource conservation, Floods Pond: J 51(1): 62
- Atlantic salmon, environmental impact, aquaculture effluents, benthos, N.B.: TF 1949
- diatoms, sediment sampling, indicator species, acidification, alkalinity, mathematical models, freshwater lakes, N.Y.: J 51(8): 1855
- Mallotus villosus*- see **CAPELIN**
- MAMMALIA**
- marine fish, population genetics, DNA, comparative studies: J 51(9): 1959
- MANITOBA (PROVINCE) CANADA**
- aquatic insects, biological sampling, emergence, Assiniboine River: TF 1995
- aquatic insects, emergence, checklists, Lake Winnipeg: MF 2223
- Crustacea, benthos, biological sampling, baseline studies, Lake Winnipeg: DF 928
- Invertebrata, Algae, ecosystems, food chains, aquatic plants: J 51(3): 681
- Invertebrata, benthos, resource surveys, Lake Winnipeg: MF 2261
- MARINE MAMMALS**
- distribution records, biological data, marine parks, Saguenay River, Que.: MF 2220F
- walrus, stock assessment, fishery management, resource conservation, conferences, world oceans: TF 1940
- MARINE ORGANISMS**
- fish, reproductive behavior, imprinting, homing behavior: J 51(7): 1664
- MARITIME PROVINCES**
- American Lobster, bioaccumulation, harbours, aromatic hydrocarbons: TF 1960
- MARLIN, STRIPED** (*Tetrapturus audax*)
- stock identification, population genetics, DNA, cell organelles, South Pacific Ocean: J 51(8): 1762
- Melanogrammus aeglefinus*- see **HADDOCK**
- Merluccius bilinearis*- see **HAKE, SILVER**
- Merluccius productus*- see **HAKE, PACIFIC**
- METEOROLOGY**
- climatic data, fronts, infrared imagery, slopes, shelf fronts, Northwest Atlantic Ocean: DH 125
- oceanographic data, current meter data, meteorological observations, hydrographic data, Newfoundland Shelf, Grand Banks: DH 131
- METHODOLOGY AND TECHNIQUES**
- Atlantic salmon, population genetics, electrophoresis, transplantation, Esva River, Spain: J 51(2): 248
- brown shrimp, chemical pollutants, phenols, avoidance reactions: J 51(4): 784
- chinook salmon, juveniles, developmental stages, animal morphology, analytical techniques: J 51(4): 836
- fishery data, fishery management, analytical errors, regression analysis: J 51(6): 1420
- fishery management, remote sensing, renewable resources, evaluation: J 51(3): 743
- freshwater fish, bioenergetics, oxygen consumption, metabolism, swimming, videotape recordings: J 51(5): 1119
- marine fish, fishery management, stock assessment, fishery data, numerical analysis, risks: J 51(12): 2640
- sea scallop, Fourier analysis, population structure, shells, N.S.: J 51(2): 348
- spectroscopic techniques, strontium, calcium, otoliths, bluenose warehouse, alfonso: J 51(3): 545
- MEXICO, GULF OF**
- black drum, red drum, red snapper, population genetics, DNA, cell organelles, stock identification, marine fish: J 51(Suppl. 1): 203
- MICHIGAN (STATE) USA**
- plankton, food webs, carbon cycle, freshwater lakes, Gogebic Country: J 51(9): 2034
- MIGRATION AND TAGGING**
- alewife, blueback herring, homing behavior, tagging, anadromous migrations, Saint John River, N.B.: TF 2015
- Arctic char, fishery management, migrations, tagging, anadromous species, Nauyuk Lake, N.W.T.: J 51(9): 1927
- Atlantic cod, migrations, overwintering, Trinity Bay, Newfoundland: J 51(1): 142
- coho salmon, fishery management, Capilano River, B.C.: MF 2118
- fish, marking, fishery management, bibliography: TF 1951
- mathematical models, growth, tagging: J 51(2): 263
- Pacific salmon, pink salmon, population genetics, genetic drift, migrations: J 51(Suppl. 1): 223
- skipjack tuna, fishery management, tagging, attracting techniques, local movements, Solomon Island: J 51(12): 2642
- sockeye salmon, environmental effects, ocean currents, migrations, computer programs, North Pacific: J 51(2): 441
- spawning grounds, Pacific salmon, geographical distribution, B.C.: TF 1967
- white whale, distribution records, migrations, satellite communication, Arctic Archipelago: J 51(7): 1653

MIGRATION AND TAGGING continued

yellowfin tuna, stock assessment, spatial variations, migrations, mathematical models, east Pacific ocean: J 51(9): 2027

MINNESOTA (STATE) USA

phytoplankton, nutrient deficiency, nitrogen, acid rain, freshwater lakes, Northern Lakes and Forests ecoregion: J 51(6): 1281
 trophic relationships, fish kill, eutrophic lakes, community composition, Christina Lake: J 51(5): 1180
 walleye, genetic drift, mathematical models, Red Lakes, Minn.: J 51(4): 774

MINNOW, FATHEAD (*Pimephales promelas*)

brook stickleback, competition, feeding behavior, organism morphology, turbidity: J 51(7): 1629
 pollution effects, insecticides, temperature tolerance: J 51(2): 437
 toxicity, pollution effects, chlorine compounds, growth, population density: J 51(2): 365

MISSISSIPPI RIVER

bluegill, cadmium, pollution effects, growth, sediments: J 51(6): 1356

MODELS

American lobster, growth, mathematical models, RNA, DNA, water temperature: J 51(2): 286
 Atlantic salmon, acidification, biological age, mortality, mathematical models, LaHave River, N.S.: J 51(3): 662
 blue endeavour prawns, growth, mathematical models: J 51(7): 1585
 capelin, fish larvae, residence time, transport processes, mathematical models, Conception Bay, Newfoundland: J 51(6): 1297
 Cladocera, secondary production, phosphorus, mathematical model: J 51(5): 1055
 coho salmon, chinook salmon, PCB, bioaccumulation, mathematical models, Michigan Lake: J 51(6): 1384
 Crustacea, classification systems, population dynamics, sexual maturity, moulting, mathematical models: J 51(2): 408
 diatoms, sediment sampling, indicator species, acidification, alkalinity, mathematical models, freshwater lakes, N.Y., ME.: J 51(8): 1855
 dungeness crab, bigeye tuna, fishery management, biological production, potential yield, mathematical models: J 51(8): 1823
 environmental monitoring, water quality, mathematical models, rivers: J 51(5): 1077
 fish, growth, tagging, mathematical models: J 51(8): 1689
 fishery management, stock assessment, mathematical models, evaluation: J 51(8): 1676
 food webs, biomass, body size, pelagic environment, mathematical models, Lake Michigan, Lake Ontario: J 51(11): 2603
 hoki, fishery management, stock assessment, harvesting, parameters, fishery data, mathematical models, New Zealand: J 51(12): 2673
 lake trout, sea lamprey, predation, species extinction, mathematical models, Great Lakes: J 51(4): 942

least cisco, environmental effects, dispersion, winds, mathematical models, Beaufort Sea: J 51(4): 890
 marine fish, fishery management, fishermen, fishing grounds, quota regulations, fishery economics, by catch, mathematical models: J 51(12): 2688
 marine fish, fishery policy, risks, evaluation, mathematical models: J 51(12): 2705
 marine fish, mortality, gear selectivity, quota regulations, stock assessment, mathematical models: J 51(12): 2654
 mathematical models, fishery management, population dynamics, recruitment: J 51(7): 1462
 mathematical models, growth, tagging: J 51(2): 263
 Pacific halibut, fishery data, mathematical model, quality control, trawl nets: J 51(2): 357
 Pacific halibut, fishery management, marking, body size, mortality, mathematical models: J 51(3): 734
 Pacific salmon, escapement, counters, mathematical models, fishery management: J 51(3): 552
 Pacific salmon, recruitment, harvesting, body size, fishery management: J 51(3): 603
Penaeus, Metapenaeus, fishery management, recruitment, bottom trawls, simulation, Queensland, New Zealand: J 51(5): 998
 plankton, marine fish, trophodynamic cycle, food webs, biological production, mathematical models, Vancouver Island, B.C.: J 51(8): 1737
 sea lamprey, temperature preference, fish physiology, behavioral responses, Arrhenius model: J 51(2): 253
 sea scallop, fishery management, common property resources, mathematical models, Georges Bank, North West Atlantic Ocean: J 51(4): 900
 sockeye salmon, mathematical models, fishery management, fishing gear, B.C.: J 51(7): 1535
 stock assessment, fishery management, population dynamics, mathematical models: J 51(3): 713
 stock identification, DNA, fish, mathematical models: J 51(2): 417
 walleye, fishery management, genetic drift, mathematical models, Red Lakes, Minn.: J 51(4): 774

MOLLUSCA- see also names of species
 northern shrimp, Crustacea, stock assessment, St. Lawrence Gulf, St. Lawrence Estuary, Que.: MF 2257F
 Sepioidea, age determination, growth, statocysts, analytical techniques: J 51(11): 2612
 zebra mussel, Pelecypoda, fouling organisms, biological damage, Lake Erie: J 51(10): 2234
 Lake St. Clair: J 51(10): 2227

Morone saxatilis- see **BASS, STRIPED**

MORPHOLOGY AND TAXONOMY
Aphanizomenon schindleri, Algae, new species, organism morphology, taxonomy, Experimental Lakes Area: J 51(10): 2267
 Atlantic salmon, coho salmon, phenotypes, phenotypic variations, organism morphology, fish culture, Norway: J 51(12): 2808
 chinook salmon, juveniles, developmental stages, animal morphology, analytical techniques: J 51(4): 836

SUBJECT INDEX/INDEX SUJET

- freshwater fish, life history, feeding behavior, organism morphology, Great Lakes: MF 2209
- jackass morwong, age determination, otoliths, lymphatic system, organism morphology, marine fish: J 51(10): 2341
- quagga mussel, taxonomy, organism morphology, classification systems: J 51(7): 1474
- quagga mussel, stock identification, organism morphology, Great Lakes: J 51(7): 1485
- Salvelinus* spp., Japanese huchen, phylogenetics, taxonomy, organism morphology, karyology, hybridization: J 51(Suppl. 1): 196
- MORWONG, JACKASS** (*Nemadactylus macropterus*)
age determination, otoliths, lymphatic system, organism morphology, marine fish: J 51(10): 2341
population genetics, stock identification, DNA, Tasmania, Australia, New Zealand: J 51(5): 1101
- MUSSEL, BLUE** (*Mytilus edulis*)
aquaculture, mollusc culture, fishery management, Magdalen Islands: IF 221
mussel culture, identification keys, electrophoresis, enzymes, N.S.: TF 1969
- MUSSEL, QUAGGA** (*Dreissena bugensis*)
taxonomy, organism morphology, classification systems: J 51(7): 1474
stock identification, organism morphology, Great Lakes: J 51(7): 1485
- MUSSEL, ZEBRA** (*Dreissena polymorpha*)
colonization, geographical distribution, abundance, physicochemical properties, St. Lawrence River, Hudson River, Oneida Lake, N.Y.: J 51(5): 1024
larval settlement, abundance, artificial substrata, correlational analysis: J 51(4): 856
Mollusca, Pelecypoda, fouling organisms, biological damage, Lake Erie: J 51(10): 2234
Mollusca, Lake St. Clair: J 51(10): 2227
population density, geographical distribution, colonization, mathematical models, Wis.: J 51(5): 1189
water temperature, turbidity, oxygen consumption, Ohio River, Ky.: J 51(1): 179
- MUSSELS**
mussel culture, identification keys, electrophoresis, enzymes, N.S.: TF 1969
- Mysis relicta*- see **SHRIMP, OPOSSUM**
- Mytilus edulis*- see **MUSSEL, BLUE**
- Nemadactylus macropterus*- see **MORWONG, JACKASS**
- NETHERLANDS**
freshwater fish, growth, water temperature, mathematical models, Tjeukemeer Lake: J 51(3): 516
- NEVADA (STATE) USA**
phytoplankton, nutrients, nitrogen, limiting factors, climatic changes, salt lakes, Pyramid Lake: J 51(4): 862
- NEW BRUNSWICK (PROVINCE) CANADA**
alewife, blueback herring, homing behavior, tagging, anadromous migrations, Saint John River: TF 2015
anadromous species, catadromous species, fishery survey, Kouchibouguac Park, Black River: DF 919
Atlantic salmon, environmental impact, aquaculture effluents, benthos, ME.: TF 1949
- Atlantic salmon, fishery management, fish catch statistics, gillnets, Miramichi River: IF 222
- Atlantic salmon, sport fishing, fry, survival, Miramichi River: TF 1982
- bibliographic information, research institutions, scientific personnel, DFO, Moncton: MF 2258
- Canadian beaver, water quality, aquatic mammals, ice cover, Catamaran Brook, Little Southwest Miramichi River: TF 1986
- eastern oyster, oyster fisheries, molluscan larvae, flushing, Caraquet Bay: TF 1945
- fishery institutions, DFO, research programmes, scientific personnel, St. Andrews: MF 2269
- marine fish, anadromous species, research institutions, fishery institutions, research programmes, DFO, Moncton: TF 1956
- rainbow smelt, landing statistics, historical account, Chaleur Bay: DF 933F
- resuspended sediments, seafloor sampling, grain size, marine aquaculture, L'Etang inlet: TH 156
- sea scallop, scallop culture, aquaculture techniques, economic analysis, Passamaquoddy Bay: TF 2012
- sport fishing, anadromous species, inland fisheries, development potential, resource management: MF 2216
- NEW ENGLAND**
zooplankton, indicator species, environmental conditions, trophic, freshwater lakes, New England: J 51(11): 2435
- NEW YORK (STATE) USA**
acidification, palaeoecology, sediment sampling, historical account, Adirondack Park: J 51(7): 1550
aquatic plants, acidity, buffers, checklists, Woods Lake, Adirondack Region: J 51(1): 20
brook trout, acidification, survival, Woods Lake, Adirondack Mountains: J 51(4): 792
diatoms, sediment sampling, indicator species, acidification, alkalinity, mathematical models, freshwater lakes, ME.: J 51(8): 1855
sediments, manganese, reduction, Oneida Lake: J 51(1): 185
zebra mussel, colonization, geographical distribution, abundance, physicochemical properties, St. Lawrence River, Hudson River, Oneida Lake: J 51(5): 1024
- NEW ZEALAND**
hoki, fishery management, stock assessment, harvesting, parameters, fishery data, mathematical models: J 51(12): 2673
jackass morwong, population genetics, stock identification, DNA, Tasmania, Australia: J 51(5): 1101
Penaeus, Metapenaeus, fishery management, recruitment, bottom trawls, simulation, Queensland: J 51(5): 998
- NEWFOUNDLAND (PROVINCE) CANADA**
Atlantic cod, fishery management, population number, temporal variations, Trinity Bay: J 51(1): 78
Atlantic cod, migrations, overwintering, Trinity Bay: J 51(1): 142
Atlantic cod, overwintering, blood, glycoproteins, fish physiology, coastal waters, Trinity Bay: J 51(12): 2834
brown trout, biological stress, enzymatic activity, pollution indicators, rivers, St. John's: TF 1947

NEWFOUNDLAND (PROVINCE) CANADA continued

- capelin, fish larvae, residence time, transport processes, mathematical models, Conception Bay: J 51(6): 1297
- fishery economics, fishing vessels, economic analysis, northwest Atlantic ocean: EC 93
- oceanographic data, salinity, water density, water temperature: TH 159
- oceanographic data, water temperature, salinity, water density, Bonavista Bay: TH 150
- water temperature, monitoring, long-term records, temperature data: DH 124
- winter flounder, pulp wastes, pollution effects, indicator species, fish physiology, St. George's Bay: J 51(10): 2203

NEWFOUNDLAND SHELF

- sea ice, recording equipment, oceanographic data: TH 153

NORTH AMERICA

- sockeye salmon, stock identification, enzymes, fishery management, population genetics, Asia: J 51(Suppl. 1): 132
- whitefish, phylogenetics, cell organelles, DNA, interglacial periods, Eurasia: J 51(Suppl. 1): 240

NORTH ATLANTIC OCEAN

- Atlantic cod, stock identification, otoliths, spawning grounds: J 51(9): 1942
- Atlantic mackerel, fish catch statistics, foreign fishing, NAFO, international agreements: DF 947
- plankton surveys, abundance, long-term records: TF 1966
- winter flounder, bioaccumulation, chemical pollutants, cytochromes: J 51(4): 933

NORTH PACIFIC OCEAN

- chum salmon, distribution records: J 51(3): 501
- stock identification, DNA, population structure: J 51(6): 1430
- flying squid, fisheries management, gillnetters, fish catch statistics: TF-8
- marine environment, environmental impact, conferences: TF 1948
- pink salmon, stock identification, electrophoresis, population genetics, fishery management, Russia: J 51(Suppl. 1): 156
- sockeye salmon, environmental effects, ocean currents, migrations, computer programs: J 51(2): 441

NORTHEAST ATLANTIC OCEAN

- Atlantic cod, feeding behavior, sulphur compounds, odour, Labrador, Newfoundland: J 51(4): 881

NORTHEAST PACIFIC OCEAN

- clam fisheries, stock assessment, Georgia Strait, Queen Charlotte Strait, B.C.: TF 1972
- demersal fisheries, environmental effects, stock assessment, geographical distribution, water depth, bottom temperature, Hecate Strait: J 51(6): 1401
- demersal fisheries, fishery management, fish catch statistics: TF 1925
- sablefish, Coelenterata, competition, population number, Vancouver Island: TF 1939

NORTHWEST ATLANTIC OCEAN

- Atlantic cod, depleted stocks, resource management, recruitment, overexploitation, Labrador, Newfoundland: J 51(9): 2126
- Atlantic cod, fishery survey, bottom trawls, abundance, environmental factors, Scotian shelf, Georges Bank: TF 1958
- Atlantic herring, growth, body condition, length-weight relationships, correlational analysis: J 51(5): 1169
- climatic data, fronts, infrared imagery, slopes, shelf fronts: DH 125
- commercial fishing, fishery economics, Scotia-Fundy: EC 144
- current meter data, storm surges, storm surge prediction, mathematical models, Grand Banks: TH 152
- demersal fisheries, catching methods, longlining, Scotia-Fundy region: MF 2225
- demersal fisheries, check lists, population numbers, distribution records, Scotian Shelf: TF 1953
- demersal fisheries, fishery management, conferences, Scotia-Fundy: TF 1979
- demersal fisheries, stock assessment, resource conservation, Canada: TF 1946
- environmental impact, benthos, trawling, intertidal sedimentation, Fundy Bay, Minas Basin: J 51(3): 650
- finfish fisheries, fishery management, stock assessment, Scotia-Fundy Region: MF 2252
- fishery economics, fishing vessels, economic analysis, Newfoundland: EC 93
- grey seal, harbor seal, census, aerial surveys, Bay of Fundy, N.S.: TF 1943
- haddock, demersal fisheries, abundance, geographical distribution, correlation analysis, Georges Bank: J 51(4): 808
- haddock, fishery survey, bottom trawls, abundance, environmental factors, Scotian shelf, Georges Bank: TF 1959
- oceanographic data, current meter data, current observations, Newfoundland: TH 157
- oceanographic data, meteorological observations, hydrographic data, Newfoundland Shelf, Grand Banks: DH 131
- oceanographic data, salinity, water temperature, Newfoundland shelf, Labrador shelf: TH 160
- sea scallop, fishery management, common property resources, mathematical models, Georges Bank: J 51(4): 900
- snow crab, fishery economics, crab fisheries, harvesting, licensing, fishery regulations, Newfoundland: EC 119
- water temperature, oceanographic data, Scotia-Fundy, St. Lawrence Gulf: DH 127
- wedgeclam, gilded, population structure, relict species, geographical distribution, Grand Banks: J 51(5): 1162
- NORTHWEST TERRITORIES (TERRITORY) CANADA**
- Arctic char, ecological balance, ecosystems, long-term records, Gavia Lake, Nauyuk Lake: J 51(1): 209
- Arctic char, fish catch statistics, commercial fishing, rivers, Nunavut Settlement Area: DF 910
- Arctic char, fishery management, migrations, tagging, anadromous species, Nauyuk Lake: J 51(9): 1927

SUBJECT INDEX/INDEX SUJET

- catch/effort, biological data, Greenland halibut, Baffin Island, Cumberland Sound: TF 1924
- fishery surveys, gillnets, catch composition, hydroelectric power plants, Snare River: DF 930
- marine fish, freshwater fish, marine mammals, stock assessment, fish catch statistics, Nunavut Settlement Area: MF 2262
- walrus, hunting, economic analysis, sociological aspects, Foxe Basin: TF 2011
- NORWAY**
- Arctic char, population genetics, anadromous populations, growth, parasitism, lake morphology: J 51(6): 1229
- Atlantic cod, fish larvae, survival, growth, comparative studies: J 51(5): 1012
- Atlantic herring, Pacific herring, population genetics, cell organelles, DNA, fjords, B.C.: J 51(Suppl. 1): 233
- Atlantic salmon, coho salmon, phenotypes, phenotypic variations, organism morphology, fish culture: J 51(12): 2808
- sediment pollution, heavy metals, environmental factors, freshwater lakes, mathematical models: J 51(8): 1708
- NOVA SCOTIA (PROVINCE) CANADA**
- American lobster, fishery management, landing statistics, physical oceanography, water temperature, winds, habitat, N.S.: J 51(6): 1308
- Atlantic salmon, acidification, biological age, mortality, mathematical models, LaHave River: J 51(3): 662
- oil spills, pollutant persistence, beaches, Chedabucto Bay: J 51(4): 845
- sea scallop, metabolism, phosphorus, scallop culture, spectroscopic techniques: J 51(9): 2105
- sea scallop, population structure, shells, Fourier analysis: J 51(2): 348
- sea scallop, scallop fisheries, fishery management, stock assessment, historical account, Annapolis Basin: MF 2230
- snow crab, fishery management, catch/effort, population structure, exploitation, Cape Breton: TF 2021
- winter flounder, pollution effects, enzymatic activity, aromatic hydrocarbons, sediments, Sydney estuary: J 51(6): 1368
- OCEANOGRAPHY**
- American lobster, fishery management, landing statistics, physical oceanography, water temperature, winds, habitat, N.S.: J 51(6): 130
- chemical oceanography, physical oceanography, water temperature, hydrocarbons, Beaufort Shelf: DH 129
- current meter data, current observations, Newfoundland, Northwest Atlantic ocean: TH 157
- current meter data, salinity, water temperature, time series, hovercraft, Fraser river, B.C.: DH 126
- current meter data, storm surges, storm surge prediction, Grand Banks: TH 152
- current meter data, water properties, sewage, Prince Rupert Horn, B.C.: TH 154
- oceanographic data, current meter data, meteorological observations, hydrographic data, Newfoundland Shelf, Grand Banks: DH 131
- oceanographic data, salinity, water density, water temperature, Newfoundland: TH 159
- oceanographic data, salinity, water temperature, Newfoundland shelf, Labrador shelf: TH 160
- oceanographic data, temperature profiles, salinity profiles, St. Lawrence Gulf, DH 119(1)f, DH 119(4)f
- oceanographic data, water temperature, salinity, current meter data, tidal analysis, water density, Hudson Bay: DH 132
- oceanographic data, water temperature, salinity, water density, Bonavista Bay, Newfoundland: TH 150
- pack ice, sea ice, ice drift, ice thickness, sonar, Beaufort Sea: TH 151
- physical oceanography, satellite altimetry, mesoscale flow: TH 161
- plankton surveys, oceanographic data, water temperature, salinity, manuals, B.C.: TF 1976
- sea ice, ice forecasting, polar oceanography, Beaufort sea: TH 158
- sea ice, oceanographic observations, cruises, Canada: DH 128
- sea ice, recording equipment, oceanographic data, Newfoundland shelf: TH 153
- vertical profiles, salinities, water temperature, current observations, Fraser River, B.C.: DH 133
- vertical profiles, temperature profiles, fluorescence, salinity profiles, nitrates, St. Lawrence River Estuary: DF 894F
- water temperature, monitoring, long-term records, temperature data, Newfoundland: DH 124
- water temperature, oceanographic data, Scotia-Fundy, St. Lawrence Gulf: DH 127
- Odobenus rosmarus* - see WALRUS
- Odobenus rosmarus rosmarus* - see WALRUS, ATLANTIC
- Ommastrephes bartrami* - see SQUID, FLYING
- Oncorhynchus clarki* - see TROUT, CUTTHROAT
- Oncorhynchus gorbuscha* - see SALMON, PINK
- Oncorhynchus keta* - see SALMON, CHUM
- Oncorhynchus kisutch* - see SALMON, COHO
- Oncorhynchus masou* - see SALMON, CHERRY
- Oncorhynchus mykiss* - see TROUT, RAINBOW
- Oncorhynchus nerka* - see SALMON, SOCKEYE
- Oncorhynchus* spp. - see SALMON (Pacific in general)
- Oncorhynchus tshawytscha* - see SALMON, CHINOOK
- ONTARIO (PROVINCE) CANADA**
- chemical limnology, phosphorus, stratification, sedimentation, freshwater lakes, Ont.: J 51(6): 1330
- freshwater fish, fishery surveys, species diversity, lake fisheries, fish catch statistics: DF 921
- Invertebrata, freshwater fish, primary production, bioaccumulation, chemical pollutants, bioenergetics, Lake Ontario: J 51(3): 693
- northern redbelly dace, population genetics, biogeography: J 51(6): 1218
- opossum shrimp, freshwater crustaceans, lipids, seasonal variations, freshwater lakes: J 51(9): 1935
- rainbow trout, genetics, cell organelles, DNA, spawning populations, cultured organisms, natural populations: J 51(Suppl. 1): 284
- zooplankton, acidification, mineral industry, Sudbury: J 51(1): 151
- zooplankton, community composition, species diversity, morphometry, freshwater lakes: J 51(11): 2424

OREGON (STATE) USA

- northern squawfish, Pacific salmon, feeding behavior, prey selection, Bonneville Dam, Columbia River:
J 51(5): 1197

Osmerus mordax- see **SMELT, RAINBOW**

OSTEICHTHYES

- coelacanth, gray bichir, marbled lungfish, South African lungfish, sterlet, phylogenetics, comparative studies:
J 51(6): 1265

OYSTER, EASTERN (*Crassostrea virginica*)

- oyster fisheries, molluscan larvae, flushing, Caraquet Bay, N.B.: TF 1945

- stock identification, population genetic, enzymes, proteins, Laguna Madre, Tex.: J 51(Suppl. 1): 215

OYSTER, PACIFIC (*Crassostrea gigas*)

- population genetics, DNA, introduced species, B.C.: J 51(7): 1608

Pandalus borealis- see **SHRIMP, NORTHERN**

Pandalus montagui- see **SHRIMP, AESOP**

PELECYPODA

- zebra mussel, Mollusca, fouling organisms, biological damage, Lake Erie: J 51(10): 2234

- zebra mussel, Mollusca, fouling organisms, biological damage, Lake St. Clair: J 51(10): 2227

Penaeus aztecus- see **SHRIMP, BROWN**

Penaeus spp.- see **SHRIMPS**

PENNSYLVANIA (STATE) USA

- Bacillus thuringiensis* var. *israelensis*, pesticides, benthos, Invertebrata, aquatic insects, Susquehanna River:
J 51(2): 295

- brook trout, acidification, aluminium, mortality, rivers:
J 51(7): 1620

Perca flavescens- see **PERCH, YELLOW**

Perca fluviatilis- see **PERCH, EURASIAN**

PERCH, EURASIAN (*Perca fluviatilis*)

- indicator species, pollution effects, pulp wastes, Sweden:
J 51(10): 2195

PERCH, YELLOW (*Perca flavescens*)

- fishery management, stock assessment, fishery data, potential yield, risks, mathematical analysis: J 51(4): 946

- growth, natural populations, enclosures, benthos, prediction, mathematical models: J 51(11): 2501

Petromyzon marinus- see **LAMPREY, SEA**

Phoca vitulina- see **SEAL, HARBOR**

Phoxinus eos- see **DACE, NORTHERN REDBELLY**

PHYSIOLOGY AND BIOCHEMISTRY

- American lobster, moulting, cuticles, dimensions, physiology:
J 51(8): 1774

- American plaice, fish culture, salinity effects, osmoregulation, survival: J 51(11): 2448

- Atlantic cod, overwintering, blood, glycoproteins, fish physiology, coastal waters, Trinity Bay, Newfoundland:
J 51(12): 2834

- Atlantic halibut, fish physiology, sexual maturity, proteins:
J 51(8): 1700

- Atlantic mackerel, fats, body size, seasonal variation, St. Lawrence Gulf: IF 220

- Atlantic salmon, fish physiology, enzymatic activity, hormones, Puget Sound, Wash.: J 51(3): 567
chinook salmon, swimming, growth, thyroid, diets:
J 51(9): 1975

- coho salmon, fish physiology, steroids, cultured organisms, natural populations: J 51(10): 2179

- coho salmon, osmoregulation, growth, cultured organisms, natural populations, salinity tolerance: J 51(10): 2170

- coho salmon, osmoregulation, swimming, salinity tolerance, cultured organisms, natural populations: J 51(10): 2188

- dace, bioenergetics, food consumption, metabolism, fish physiology, mathematical models: J 51(11): 2558

- freshwater fish, bioenergetics, oxygen consumption, metabolism, swimming, videotape recordings:
J 51(5): 1119

- northern squawfish, blood, oxygen, temperature effects, carbon dioxide: J 51(1): 13

- northern squawfish, metabolism, oxygen consumption, fish physiology: J 51(1): 8

- opossum shrimp, freshwater crustaceans, lipids, seasonal variations, freshwater lakes, Ont.: J 51(9): 1935

- rainbow trout, bioaccumulation, gills, metals, fresh water:
J 51(11): 2482

- rainbow trout, chlorine compounds, sublethal effects, pulp wastes, swimming, disease resistance: J 51(9): 1967

- rainbow trout, fish physiology, electric fishing, fish handling, mortality: J 51(8): 1791

- rainbow trout, fish physiology, electric fishing, swimming:
J 51(8): 1799

- rainbow trout, fish physiology, metabolism, aluminum, acclimation, J 51(3): 527

- rainbow trout, fish physiology, metabolism, aluminum, acclimation, J 51(3): 536

- sea lamprey, temperature preference, fish physiology, behavioral responses, Arrhenius model: J 51(2): 253

- sea scallop, metabolism, phosphorus, scallop culture, spectroscopic techniques, N.S.: J 51(9): 2105

- snow crab, reproductive behavior, sexual maturity, physiology, muscles: J 51(5): 1110

- sockeye salmon, fish physiology, osmoregulation, growth:
J 51(4): 974

- striped bass, fish physiology, bioenergetics, juveniles:
J 51(7): 1528

- striped bass, fish physiology, swimming, growth: J 51(7): 1519

- sunfish, fish physiology, vision, body size, correlational analysis: J 51(9): 2017

- tilapia, growth regulators, hormones, vaccines: J 51(1): 1

- winter flounder, pulp wastes, pollution effects, indicator species, fish physiology, St. George's Bay, Newfoundland: J 51(10): 2203

PIKE, NORTHERN (*Esox lucius*)

- walleye, bioaccumulation, mercury, pollution indicators, mathematical models: J 51(9): 2090

Pimephales promelas- see **MINNOW, FATHEAD**

Placopecten magellanicus- see **SCALLOP, SEA**

PLAICE, AMERICAN (*Hippoglossoides platessoides*)

SUBJECT INDEX/INDEX SUJET

aquaculture, fish culture, salinity effects, osmoregulation, survival: J 51(11): 2448
parasites. *Haemohormidium terranova*, mortality, blood: J 51(4): 959

PLANKTON

Bosminidae, zooplankton, population genetics, species diversity, inland waters: J 51(4): 873
brackishwater environment, primary production, St. Lawrence River: J 51(1): 161
chlorophylls, oligotrophic lakes, correlational analysis: J 51(9): 2052
chlorophylls, phosphorus, zooplankton, *Daphnia*, herbivores: J 51(2): 401
coho salmon, chinook salmon, *Chaetoceros concavicornis*, phytoplankton, biological poisons, mortality, fish disease: J 51(11): 2493
Crustacea, distribution records, maps, bibliographies, plankton surveys, freshwater lakes, Canada: TF 1954
food webs, carbon cycle, freshwater lakes, Gogebic Country, Mich.: J 51(9): 2034
food webs, nitrogen, carbon, energy flow, Smith Lake, AK.: J 51(6): 1338
Hesperodiptomus, Rotatoria, Copepoda, predation, enclosures: J 51(11): 2520
nutrients (mineral), photosynthesis, phytoplankton, growth, freshwater lakes, Experimental Lakes Area: J 51(12): 2784
opossum shrimp, zooplankton, freshwater fish, interspecific relationships, competition, prey selection, Lake Michigan, Lake Ontario: J 51(11): 2591
palaeolimnology, fossils, pigments, eutrophication, phytoplankton, Experimental Lakes Area: J 51(10): 2286
phytoplankton, algal blooms, Bacteria, eutrophication, nutrients (mineral), Experimental Lakes Area: J 51(10): 2254
phytoplankton, Bacteria, biological production, chlorophylls, primary production, heterotrophic organisms, Humboldt Lake, Sack.: J 51(10): 2219
phytoplankton, biological production, seasonal variations, St. Lawrence Estuary, Laurentian Trough: TF 2006
phytoplankton, eutrophication, nutrients (mineral), experimental research, Experimental Lakes Area: J 51(10): 2247
phytoplankton, introduced species, ballast tanks, environmental impact, aquaculture, Canada: DF 937
phytoplankton, nutrient deficiency, nitrogen, acid rain, freshwater lakes, Northern Lakes and Forests ecoregion, Minn.: J 51(6): 1281
phytoplankton, nutrients, nitrogen, limiting factors, climatic changes, salt lakes, Pyramid Lake, Nev.: J 51(4): 862
phytoplankton, nutrients, physical limnology, trophic structure, freshwater lakes, Denmark: J 51(8): 1692
phytoplankton, photosynthesis, biological sampling, ice-free periods, freshwater lakes, Experimental Lakes Area: J 51(12): 2734
phytoplankton, Salmonidae, stocking (organisms), environmental impact, biomass, freshwater lakes, Rocky Mountains: J 51(11): 2411

phytoplankton, yellow perch, northern pike, trophic relationships, introduced species, environmental impact, nutrients (mineral), freshwater lakes, Experimental Lakes Area: J 51(12): 2794
plankton surveys, abundance, long-term records, North Atlantic Ocean: TF 1966
plankton surveys, larvae, fish eggs, geographical distribution, St. Lawrence Gulf: TF 2019F
plankton surveys, oceanographic data, water temperature, salinity, manuals, B.C.: TF 1976
zooplankton, acidification, mineral industry, Sudbury, Ont.: J 51(1): 151
zooplankton, biomass, geographical distribution, fresh water runoff, advection, St. Lawrence Gulf: J 51(3): 617
zooplankton, community composition, species diversity, morphometry, freshwater lakes, Ont.: J 51(11): 2424
zooplankton, dams, seasonal variation, tributaries, Ohio River, Ky.: J 51(7): 1634
zooplankton, indicator species, environmental conditions, trophic, freshwater lakes, New England: J 51(11): 2435
zooplankton, seasonal distribution, biomass, abundance, check lists, Beaufort Sea, DF 912, DF 922, DF 923
Pleuronectes americanus- see FLOUNDER, WINTER
Pleuronectes ferrugineus- see FLOUNDER, YELLOWTAIL
Pleuronectes platessa- see PLAICE
Pogonias cromis- see DRUM, BLACK
POLLOCK, WALLEYE (*Theragra chalcogramma*)
fishery management, harvesting, risks, fishery economics, mathematical models, AK.: J 51(12): 2695

POLLUTION

acid rain, monitoring systems, data collection, Canada: TF 1987
acidification, fertilizers, trace metals, Experimental Lakes Area: DF 941
acidification, palaeoecology, sediment sampling, historical account, Adirondack Park, N.Y.: J 51(7): 1550
acidification, pollution effects, benthos, Experimental Lakes Area, Ont.: J 51(8): 1877
American eel, chemical pollutants, bioaccumulation, spatial variation, temporal variation, St. Lawrence River estuary: J 51(2): 464
American Lobster, bioaccumulation, harbours, aromatic hydrocarbons, Maritime Provinces: TF 1960
antifouling substances, degradation, bioaccumulation, biota, B.C.: TH 155
aquatic environments, toxicity, toxicants, conferences, Edmonton, Alta.: TF 1942
aquatic plants, acidity, buffers, checklists, Woods Lake, Adirondack Region, N.Y.: J 51(1): 20
aquatic plants, trace elements, sediments, bioaccumulation, food webs: J 51(8): 1769
Atlantic salmon, acidification, biological age, mortality, mathematical models, LaHave River, N.S.: J 51(3): 662
Atlantic walrus, heavy metals, selenium, bioaccumulation, Arctic: J 51(2): 426

POLLUTION continued

- Bacillus thuringiensis* var. *israelensis*, pesticides, benthos, Invertebrata, aquatic insects, Susquehanna River, Pa.: J 51(2): 295
- Bacillus thuringiensis* var. *kurstaki*, bacteriocides, pollution effects, benthos: J 51(5): 1037
- Bacteria, acidification, dystrophic lakes, buffers, microbiology, freshwater lakes, Sweden: J 51(11): 2529
- bluegill, cadmium, pollution effects, growth, sediments, Mississippi River: J 51(6): 1356
- brook trout, acidification, aluminium, mortality, rivers, Pa.: J 51(7): 1620
- brook trout, acidification, survival, Woods Lake, Adirondack Mountains, N.Y.: J 51(4): 792
- brook trout, brown trout, rainbow trout, *Bacillus thuringiensis* var. *israelensis*, pesticides, toxicity tests: J 51(6): 1451
- brown shrimp, chemical pollutants, phenols, avoidance reactions: J 51(4): 784
- brown trout, biological stress, enzymatic activity, pollution indicators, rivers, St. John's, Newfoundland: TF 1947
- chemical pollutants, trace metals, nutrients, historical account, St. Lawrence River: J 51(5): 1088
- chemical speciation, cadmium, pH, sediment-water interface, Experimental Lakes Area, Ont.: J 51(9): 1951
- chinook salmon, yellowtail rockfish, sublethal effects, fungicides, forest industry, predation: J 51(8): 1780
- Cladocera, eutrophication, fossil assemblages, biostratigraphy, Experimental Lakes Area: J 51(10): 2312
- coho salmon, chinook salmon, PCB, bioaccumulation, mathematical models, Michigan Lake: J 51(6): 1384
- demersal fisheries, feeding behavior, eutrophication, hypoxia, Sweden: J 51(2): 321
- diatoms, sediment sampling, indicator species, acidification, alkalinity, mathematical models, freshwater lakes, N.Y., ME.: J 51(8): 1855
- Eurasian perch, indicator species, pollution effects, pulp wastes, Sweden: J 51(10): 2195
- eutrophication, phosphorus, nutrients (mineral), biomass, Lake Michigan, Lake Ontario: J 51(11): 2570
- eutrophication, phosphorus, photosynthesis, light absorption, Lake Michigan, Lake Ontario: J 51(11): 2579
- eutrophication, pollution effects, sedimentary structures, biostratigraphy, Experimental Lakes Area: J 51(10): 2300
- freshwater ecology, experimental research, environmental effects, man-induced effects, environmental monitoring, Experimental Lakes Area: J 51(12): 2721
- freshwater fish, environmental monitoring, pulp wastes, tracers, literature reviews: TF 1929
- freshwater fish, environmental monitoring, water quality, mathematical models, rivers: J 51(5): 1077
- freshwater fish, fathead minnow, insecticides, temperature tolerance: J 51(2): 437
- freshwater fish, fathead minnow, toxicity, pollution effects, chlorine compounds, growth, population density: J 51(2): 365
- freshwater fish, fishery surveys, gillnets, catch composition, hydroelectric power plants, Snare River, N.W.T.: DF 930
- freshwater fish, methyl mercury, wetlands, bioaccumulation, environmental factors, hydrology, correlational analysis: J 51(5): 1065
- freshwater fish, habitat, degradation, freshwater fish, Great Lakes: TF 1941
- freshwater fish, Invertebrata, chlorine compounds, sediments, long-term records, fresh water lakes, Alta.: J 51(4): 923
- freshwater fish, bioaccumulation, chemical pollutants, bioenergetics, Lake Ontario: J 51(3): 693
- freshwater fish, species diversity, benthos, acidification, littoral zone, freshwater lakes, Ont.: J 51(5): 1147
- freshwater fish, lake trout, bioaccumulation, mercury, trophic structure, food chains, freshwater lakes: J 51(2): 381
- freshwater fish, lake trout, PCB, fry, survival: J 51(6): 1410
- freshwater fish, leeches, acidification, indicator species, Experimental Lakes Area, Ont.: J 51(7): 1600
- freshwater fish, mangrove rivulus, toxicity tests, cadmium, indicator species, brackishwater environment: J 51(2): 280
- freshwater fish, oil spills, pollutant persistence, beaches, Chedabucto Bay, N.S.: J 51(4): 845
- freshwater fish, phytoplankton, nutrient deficiency, nitrogen, acid rain, freshwater lakes, Northern Lakes and Forests ecoregion, Minn.: J 51(6): 1281
- freshwater fish, rainbow trout, aluminum, acclimation, fish physiology, metabolism, J 51(3): 527, J 51(3): 536
- freshwater fish, rainbow trout, bioaccumulation, aromatic hydrocarbons, Mammalia: J 51(7): 1577
- freshwater fish, rainbow trout, lake trout, polychlorinated biphenyls, mathematical models, bioaccumulation, comparative studies, Michigan Lake: J 51(4): 800
- freshwater fish, rainbow trout, pollution effects, arsenic compounds, growth: J 51(2): 372
- freshwater fish, resuspended sediments, seafloor sampling, grain size, marine aquaculture, L'Etang inlet, N.B.: TH 156
- freshwater fish, sewage, current meter data, water properties, Prince Rupert Horn, B.C.: TH 154
- freshwater fish, sport fishing, pesticides, pulp waste, N.S., N.B.: TF 1981
- freshwater fish, toxicity, aquatic environment, toxicants, Canada: TF 1989
- freshwater fish, white sucker, reproduction, forest industry, chlorine compounds, St. Maurice River, Que.: J 51(2): 337
- freshwater fish, winter flounder, bioaccumulation, chemical pollutants, cytochromes, North Atlantic Ocean: J 51(4): 933
- freshwater fish, winter flounder, pollution effects, enzymatic activity, aromatic hydrocarbons, sediments, Sydney estuary, N.S.: J 51(6): 1368
- freshwater fish, zooplankton, acidification, mineral industry, Sudbury, Ont.: J 51(1): 151

SUBJECT INDEX/INDEX SUJET

- Gammarus fasciatus*, trace metals, bioaccumulation, pollution indicators, St. Lawrence River: J 51(9): 2003
- geochronometry, coring, varves, biostratigraphy, eutrophication, Experimental Lakes Area: J 51(10): 2274
- marine fish, freshwater fish, bioaccumulation, radioisotopes, caesium, physicochemical properties, trophic structure: J 51(11): 2388
- mercury, pollution control, sediments, aquatic environment: TF 1993
- palaeolimnology, eutrophication, fossil assemblages, biostratigraphy, Experimental Lakes Area: J 51(10): 2322
- phytoplankton, algal blooms, Bacteria, eutrophication, nutrients (mineral), Experimental Lakes Area: J 51(10): 2254
- phytoplankton, eutrophication, nutrients (mineral), experimental research, Experimental Lakes Area: J 51(10): 2247
- pollution monitoring, eutrophication, nutrients (mineral), experimental research, lake reclamation, Experimental Lakes Area: J 51(10): 2243
- rainbow trout, bioaccumulation, gills, metals, fresh water: J 51(11): 2482
- rainbow trout, chlorine compounds, sublethal effects, pulp wastes, swimming, disease resistance: J 51(9): 1967
- sediment pollution, heavy metals, environmental factors, freshwater lakes, mathematical models, Norway: J 51(8): 1708
- walleye, northern pike, bioaccumulation, mercury, pollution indicators, mathematical models: J 51(9): 2090
- winter flounder, pulp wastes, pollution effects, indicator species, fish physiology, St. George's Bay, Newfoundland: J 51(10): 2203

POLYCHLORINATED BIPHENYLS (PCBs)

- coho salmon, chinook salmon, bioaccumulation, mathematical models, Michigan Lake: J 51(6): 1384
- lake trout, pollution effects, fry, survival: J 51(6): 1410
- rainbow trout, lake trout, mathematical models, bioaccumulation, comparative studies, Michigan Lake: J 51(4): 800

Pomatomus saltatrix- see BLUEFISH

POPULATION DYNAMICS

- American eel, recruitment, resource depletion, St. Lawrence Gulf, St. Lawrence R. estuary: J 51(2): 479
- Atlantic cod, depleted stocks, resource management, recruitment, overexploitation, Labrador, Newfoundland: J 51(9): 2126
- Atlantic cod, fecundity, recruitment, diets, spawning population: J 51(8): 1893
- Atlantic cod, fish larvae, survival, growth, comparative studies, Norway: J 51(5): 1012
- Atlantic salmon, survival, stocking density, fry, growth, White River, Vt.: J 51(10): 2164
- bluegill, gizzard shad, recruitment, prey selection, correlation analysis: J 51(4): 913
- bluish whelk, sexual maturity, females, body size, fecundity, Saguenay Fjord, Que.: J 51(12): 2866

- brook trout, acidification, survival, Woods Lake, Adirondack Mountains, N.Y.: J 51(4): 792
- brown trout, sexual maturity, natural populations, body conditions: J 51(9): 1920
- capelin, survival, biological age, sexual maturity, mathematical models, Grand Banks: J 51(3): 642
- Crustacea, classification systems, sexual maturity, moulting, mathematical models: J 51(2): 408
- fishery management, biological data, mathematical analysis: J 51(1): 110
- mathematical models, fishery management, recruitment: J 51(7): 1462
- Pacific salmon, recruitment, harvesting, body size, mathematical models: J 51(3): 603
- rainbow trout, genetics, cell organelles, DNA, spawning populations, cultured organisms, natural populations, Ont.: J 51(Suppl. 1): 284
- sea lamprey, life cycle, metamorphosis, water temperature, photoperiod, food availability: J 51(9): 2045
- stock assessment, fishery management, mathematical models: J 51(3): 713
- walleye, reproduction, sexual maturity, bioenergetics, Lake Erie: J 51(5): 986
- white sucker, growth, sexual maturity, food availability, Ont.: J 51(9): 2066
- whitefish, fish eggs, mortality, eutrophic lakes, environmental factors, Sempach Lake, Switzerland: J 51(9): 1908

POPULATION STRUCTURE

- Arctic grayling, competition, habitat selection, body size: J 51(10): 2154
- chum salmon, stock identification, DNA, North Pacific Ocean: J 51(6): 1430
- freshwater fish, check lists, biomass, species diversity, littoral zone, freshwater lakes: J 51(5): 1128
- grey seal, harbor seal, census, aerial surveys, Bay of Fundy, N.S.: TF 1943
- sea scallop, shells, Fourier analysis, N.S.: J 51(2): 348
- snow crab, fishery management, catch/effort, exploitation, Cape Breton, N.S.: TF 2021
- wedgeclam, gilded, relict species, geographical distribution, Grand Banks, Northwest Atlantic Ocean: J 51(5): 1162

PORPOISE, HARBOUR (*Phocoena phocoena*)

- feeding behavior, summer, St. Lawrence Gulf, St. Lawrence estuary: J 51(1): 172

PREDATION AND COMPETITION

- aquatic insects, predation, spatial variations, statistical analysis: J 51(10): 2210
- Arctic grayling, competition, habitat selection, body size: J 51(10): 2154
- Atlantic herring, Pacific hake, surface temperature, predation, abundance, fishery management, mathematical models: J 51(12): 2665
- bluegill, gizzard shad, recruitment, prey selection, correlation analysis: J 51(4): 913
- brook trout, feeding behavior, prey selection, local movements, water column: J 51(2): 268
- fathead minnow, brook stickleback, competition, feeding behavior, organism morphology, turbidity: J 51(7): 1629

PREDATION AND COMPETITION continued

freshwater fish, predation, organism aggregations, avoidance reactions: J 51(8): 1832

Hesperodiaptomus, Rotatoria, Copepoda, predation, plankton, enclosures: J 51(11): 2520

lake trout, sea lamprey, predation, species extinction, mathematical models, Great Lakes: J 51(4): 942

mayflies, brook trout, avoidance reactions, predation: J 51(11): 2549

sablefish, Coelenterata, competition, population number, Vancouver Island: TF 1939

trophic relationships, fish kill, eutrophic lakes, community composition, Christina Lake, Minn.: J 51(5): 1180

walleye, feeding behavior, prey selection, fish larvae: J 51(9): 2077

PRODUCTION

Aphanizomenon flos-aquae, *Ceratium hirundinella*,

Cryptomonas erosa, *Microcystis aeruginosa*, recruitment, vertical migrations, algal blooms, eutrophic lakes, Wis.: J 51(12): 2825

chemical limnology, dissolved oxygen, primary production, diurnal variations, rivers: J 51(7): 1591

chemical limnology, phosphorus, stratification, sedimentation, freshwater lakes, Ont.: J 51(6): 1330

chlorophylls, *Daphnia*, herbivores, thermal stratification, freshwater lakes: J 51(2): 390

chlorophylls, phosphorus, zooplankton, *Daphnia*, herbivores: J 51(2): 401

Cladocera, secondary production, phosphorus, mathematical model: J 51(5): 1055

dungeness crab, bigeye tuna, fishery management, biological production, potential yield, mathematical models: J 51(8): 1823

Invertebrata, Algae, ecosystems, food chains, aquatic plants, Man.: J 51(3): 681

Invertebrata, freshwater fish, primary production, bioaccumulation, chemical pollutants, bioenergetics, Lake Ont.: J 51(3): 693

Invertebrata, trophic structure, food webs, carbon isotopes, Que.: J 51(1): 52

lake whitefish, northern pike, lake trout, walleye, bibliographic information, biological production, littoral zone: TF 1970

marine organisms, freshwater organisms, environmental effects, ice breakup, abundance, biological production, Great Whale River, Hudson Bay: J 51(11): 2467

nutrients (mineral), phosphorus, primary production, freshwater lakes, Experimental Lakes Area: J 51(12): 2739

nutrients (mineral), photosynthesis, phytoplankton, growth, freshwater lakes, Experimental Lakes Area: J 51(12): 2784

nutrients (mineral), phytoplankton, chlorophylls, spatial variations, freshwater lakes, Experimental Lakes Area: J 51(12): 2769

nutrients (mineral), stratification, summer, mixed layers, freshwater lakes, Experimental Lakes Area: J 51(12): 2756

phytoplankton, algal blooms, Bacteria, eutrophication, nutrients (mineral), Experimental Lakes Area: J 51(10): 2254

phytoplankton, Bacteria, biological production, chlorophylls, primary production, heterotrophic organisms, Humboldt Lake, Sack.: J 51(10): 2219

phytoplankton, biological production, seasonal variations, St. Lawrence Estuary, Laurentian Trough: TF 2006

phytoplankton, eutrophication, nutrients (mineral), experimental research, Experimental Lakes Area: J 51(10): 2247

phytoplankton, nutrients, nitrogen, limiting factors, climatic changes, salt lakes, Pyramid Lake, Nev.: J 51(4): 862

phytoplankton, nutrients, physical limnology, trophic structure, freshwater lakes, Denmark: J 51(8): 1692

phytoplankton, yellow perch, northern pike, trophic relationships, introduced species, environmental impact, nutrients (mineral), freshwater lakes, Experimental Lakes Area: J 51(12): 2794

plankton, brackishwater environment, primary production, St. Lawrence River: J 51(1): 161

plankton, chlorophylls, oligotrophic lakes, correlational analysis: J 51(9): 2052

plankton, marine fish, trophodynamic cycle, food webs, biological production, mathematical models, Vancouver Island, B.C.: J 51(8): 1737

plankton, primary production, suspended particulate matter, freshwater lakes: J 51(1): 25

pollution monitoring, eutrophication, nutrients (mineral), experimental research, lake reclamation, Experimental Lakes Area: J 51(10): 2243

sedimentation, carbon, nitrogen, phosphorus, nutrient cycle, freshwater lakes, Wis.: J 51(11): 2457

PROTOZOA

American plaice, *Haemohormidium terranova*, parasites, mortality, blood: J 51(4): 959

Pseudoterranova decipiens- see SEALWORM

Ptychocheilus oregonensis- see SQUAWFISH, NORTHERN PUERTO RICO

red hind, growth, otoliths, environmental factors, Bermuda: J 51(1): 133

PUMPKINSEED (*Lepomis gibbosus*)

reproductive behavior, bioenergetics, body size, correlational analysis: J 51(3): 490

QUEBEC (PROVINCE) CANADA

American lobster, economic analysis: EC 126

Atlantic herring, Atlantic mackerel, capelin, fishery industry, economic analysis: EC 130

bluish whelk, sexual maturity, females, body size, fecundity, Saguenay Fjord: J 51(12): 2866

brook trout, feeding behavior, multivariate analysis, biotic factors, abiotic factors, spatial variations, freshwater lakes, Laurentian Shield: J 51(12): 2856

SUBJECT INDEX/INDEX SUJET

- demersal fisheries, economic analysis, market research: EC 145
- fishery industry, economic analysis: EC 127
- trade, marketing: EC 140
- fishery industry, landing statistics, fishermen, economic analysis: EC 133f
- freshwater fish, check lists, biomass, species diversity, littoral zone, freshwater lakes: J 51(5): 1128
- Invertebrata, trophic structure, food webs, carbon isotopes: J 51(1): 52
- marine mammals, distribution records, biological data, marine parks, Saguenay River: MF 2220F
- Northern shrimp, shrimp fisheries, economic analysis: EC 143
- northern shrimp, Crustacea, Mollusca, stock assessment, St. Lawrence Gulf, St. Lawrence Estuary: MF 2257F
- pelagic environment, economic analysis, fishery economics: EC 139
- snow crab, crab fisheries, economic analysis, market research: EC 137
- stock assessment, finfish fisheries, fishery resources: MF 2253
- white sucker, pollution effects, reproduction, forest industry, chlorine compounds, St. Maurice River, Que.: J 51(2): 337
- Reinhardtius hippoglossoides*- see **HALIBUT, GREENLAND**
- REPRODUCTION**
- marine organisms, fish, reproductive behavior, imprinting, homing behavior: J 51(7): 1664
- Tanner crab, organism aggregations, reproductive behavior, Kodiak, AK.: J 51(6): 1273
- white sucker, pollution effects, forest industry, chlorine compounds, St. Maurice River, Que.: J 51(2): 337
- RESEARCH INSTITUTIONS**
- bibliographic information, research institutions, scientific personnel, DFO, Moncton, N.B.: MF 2258
- fishery institutions, DFO, research programmes, scientific personnel, St. Andrews, N.B.: MF 2269
- marine fish, anadromous species, fishery institutions, research programmes, DFO, Moncton, N.B.: TF 1956
- RIVULUS, MANGROVE** (*Rivulus marmoratus*)
- toxicity tests, cadmium, indicator species, brackishwater environment: J 51(2): 280
- Rivulus marmoratus*- see **RIVULUS, MANGROVE**
- ROCKY MOUNTAINS (CANADA)**
- phytoplankton, Salmonidae, stocking (organisms), environmental impact, biomass, freshwater lakes: J 51(11): 2411
- ROUGHY, ORANGE** (*Hoplostethus atlanticus*)
- hoki, fishery management, stock assessment, approximation, accuracy, New Zealand: J 51(4): 817
- RUSSIA**
- Atlantic salmon, fishery survey, population number, Pechora River Basin, Pizhma River: TF 2000
- cherry salmon, life history, males, South Primor'e: J 51(1): 197
- chum salmon, population genetics, fishery management, stock identification, genomes, Japan Sea: J 51(Suppl. 1): 95
- chum salmon, population genetics, fishery management, stock identification, geographical distribution, AK.: J 51(Suppl. 1): 84
- pink salmon, stock identification, electrophoresis, population genetics, fishery management, north Pacific Ocean: J 51(Suppl. 1): 156
- sockeye salmon, stock identification, fishery management, population genetics, homing behavior, freshwater lakes, Canada, USA: J 51(Suppl. 1): 145
- SABLEFISH** (*Anoplopoma fimbria*)
- Coelenterata, competition, population number, Vancouver Island: TF 1939
- Salmo salar*- see **SALMON, ATLANTIC**
- Salmo trutta*- see **TROUT, BROWN**
- SALMON, ATLANTIC** (*Salmo salar*)
- aquaculture, diets, iron: J 51(2): 315
- brown trout, genetics, growth, survival, polyploids, hybrids: J 51(Suppl. 1): 16
- coho salmon, phenotypes, phenotypic variations, organism morphology, fish culture, Norway: J 51(12): 2808
- environmental impact, aquaculture effluents, benthos, N.B., ME.: TF 1949
- fish physiology, enzymatic activity, hormones, Puget Sound, Wash.: J 51(3): 567
- fish physiology, juveniles, hormones, thyroid, olfactory organs, chemical stimuli: J 51(9): 1985
- fishery management, fish catch statistics, gillnets, Miramichi River, N.B.: IF 222
- fishery survey, population number, Pechora River Basin, Pizhma River, Russia: TF 2000
- population genetics, electrophoresis, transplantation, Esva River, Spain: J 51(2): 248
- pollution effects, acidification, biological age, mortality, mathematical models, LaHave River, N.S.: J 51(3): 662
- population genetics, life history, phenotypic variations, Western Arm Brook, Newfoundland, Margaree River, N.S., Miramichi River, N.B.: J 51(6): 1322
- sport fishing, fry, survival, Miramichi River, N.B.: TF 1982
- stock identification, population genetics, otoliths, fishery management, models: J 51(1): 91
- survival, stocking density, fry, growth, White River, Vt.: J 51(10): 2164
- SALMON, CHERRY** (*Oncorhynchus masou*)
- life history, males, South Primor'e, Russia: J 51(1): 197
- SALMON, CHINOOK** (*Oncorhynchus tshawytscha*)
- abundance, environmental impact, hydroelectric power, river engineering, Nechako River, B.C.: J 51(4): 965
- coho salmon, *Chaetoceros concavicornis*, phytoplankton, biological poisons, mortality, fish disease: J 51(11): 2493
- coho salmon, genetics, polyploids, hybrids, survival, growth: J 51(Suppl. 1): 31
- coho salmon, juvenile, habitat, stream flow rate, Kloiya Creek, B.C.: J 51(7): 1644
- coho salmon, PCB, bioaccumulation, mathematical models, Michigan Lake: J 51(6): 1384
- coho salmon, pink salmon, genetics, polyploids, hybridization, survival, salinity tolerance: J 51(Suppl. 1): 25
- coho salmon, rainbow trout, genetics, polyploids, saline water, biological fertilization, genetic abnormalities: J 51(Suppl. 1): 42

- SALMON, CHINOOK** (*Oncorhynchus tshawytscha*) continued
developmental stages, juveniles, animal morphology,
analytical techniques: J 51(4): 836
fish culture, sex hormones, fish eggs, aquaculture techniques:
TF 1955
fishery management, fishery surveys, escapement, Harrison
River, B.C.: MF 2200
fishery management, fishery surveys, indicator species,
Harrison River, B.C.: MF 2242
fishery management, tagging, fish counters, hatcheries, Stamp
River, B.C.: MF 2255
migrations, residence time, Fraser River, B.C.: J 51(5): 1139
population genetics, stock identification, cell organelles, DNA,
Kenai River, Kasilof River, AK.: J 51(Suppl. 1): 170
population genetics, stock identification, cultured organisms,
natural populations, DNA, B.C.: J 51(Suppl. 1): 267
stock assessment, population number, escapement, Campbell
River, Quinsam River, B.C.: MF 2251
stock assessment, population number, escapement,
Kitsumkalum River, B.C.: MF 2249
swimming, growth, thyroid, diets: J 51(9): 1975
yellowtail rockfish, sublethal effects, fungicides, forest
industry, predation: J 51(8): 1780
- SALMON, CHUM** (*Oncorhynchus keta*)
chinook salmon, pink salmon, genetics, polyploids,
hybridization, survival, salinity tolerance: J 51(Suppl.
1): 25
distribution records, tagging, North Pacific ocean: J 51(3): 501
population genetics, fishery management, stock identification,
electrophoresis, Wash., B.C.: J 51(Suppl. 1): 65
population genetics, fishery management, stock identification,
genomes, Japan Sea, Russia: J 51(Suppl. 1): 95
population genetics, fishery management, stock identification,
geographical distribution, AK., B.C.: J 51(Suppl. 1): 50
population genetics, fishery management, stock identification,
geographical distribution, AK., Russia: J 51(Suppl.
1): 84
population genetics, homing behavior, reproductive behavior,
Vancouver Island, B.C.: J 51(3): 577
stock identification, DNA, population structure, North Pacific
Ocean: J 51(6): 1430
- SALMON, COHO** (*Oncorhynchus kisutch*)
Atlantic salmon, phenotypes, phenotypic variations, organism
morphology, fish culture, Norway: J 51(12): 2808
chinook salmon, *Chaetoceros concavicornis*, phytoplankton,
biological poisons, mortality, fish disease:
J 51(11): 2493
chinook salmon, genetics, polyploids, hybrids, survival,
growth: J 51(Suppl. 1): 31
chinook salmon, juvenile, habitat, stream flow rate, Kloiya
Creek, B.C.: J 51(7): 1644
chinook salmon, PCB, bioaccumulation, mathematical models,
Michigan Lake: J 51(6): 1384
chinook salmon, rainbow trout, genetics, polyploids, saline
water, biological fertilization, genetic abnormalities:
J 51(Suppl. 1): 42
colonization, natural populations, hatcheries, B.C.: TF 1933
fish physiology, steroids, cultured organisms, natural
populations: J 51(10): 2179
migrations, fishery management, Capilano River, B.C.:
MF 2118
osmoregulation, growth, cultured organisms, natural
populations, salinity tolerance: J 51(10): 2170
osmoregulation, swimming, salinity tolerance, cultured
organisms, natural populations: J 51(10): 2188
stock assessment, escapement, Salmon River, B.C.: MF 2241
stock assessment, tagging, escapement, survival, Salmon
River, B.C.: MF 2208
- SALMON, PINK** (*Oncorhynchus gorbuscha*)
chinook salmon, chum salmon, genetics, polyploids,
hybridization, survival, salinity tolerance: J 51(Suppl.
1): 25
genetics, fishery management, natural populations, body size,
sexual maturity, Auke Creek, AK.: J 51(Suppl. 1): 9
Pacific salmon, population genetics, genetic drift, migrations:
J 51(Suppl. 1): 223
stock identification, electrophoresis, population genetics,
fishery management, north Pacific Ocean, Russia:
J 51(Suppl. 1): 156
- SALMON, SOCKEYE** (*Oncorhynchus nerka*)
environmental effects, ocean currents, migrations, computer
programs, North Pacific: J 51(2): 441
fish physiology, osmoregulation, growth: J 51(4): 974
fishery management, catchability, escapement, Skeena River,
B.C.: MF 2219
fishery management, mathematical models, fishing gear, B.C.:
J 51(7): 1535
population genetics, fishery management, stock identification,
genotypes, B.C.: J 51(Suppl. 1): 114
population number, cycles, harvesting, Fraser River, B.C.:
J 51(8): 1839
salmon fisheries, fishery management, planning, B.C.:
J 51(9): 2115
stock identification, enzymes, fishery management, population
genetics, Asia, North America: J 51(Suppl. 1): 132
stock identification, fishery management, population genetics,
homing behavior, freshwater lakes, Canada, USA,
Russia: J 51(Suppl. 1): 145
stock identification, otoliths, chemical analysis, microscopy,
Redfish Lake, Id.: J 51(1): 68
- SALMON (Pacific in general)** (*Oncorhynchus* spp.)
demersal fisheries, salmon fisheries, sport fishing statistics,
fishery management, North Vancouver, B.C., TF 1973,
TF 1974
fishery management, escapement, counters, mathematical
models: J 51(3): 552
fishery management, escapement, data processing, manuals,
B.C.: MF 2240
fishery management, gillnetters, catch/effort, mathematical
models, Skeena River, B.C.: MF 2256
fishery management, government, political aspects, fishery
economics, resource conservation, fishery organization,
world oceans, B.C.: J 51(10): 2363

SUBJECT INDEX/INDEX SUJET

- fishery management, recruitment, harvesting, body size, mathematical models: J 51(3): 603
- genetics, DNA, histochemistry, polyploids, hybridization: J 51(Suppl. 1): 38
- Pacific herring, environmental effects, river discharge, biological production, survival, Georgia Strait, B.C.: J 51(12): 2843
- pink salmon, population genetics, genetic drift, migrations: J 51(Suppl. 1): 223
- population genetics, brood stocks, hatcheries, inbreeding, natural populations: J 51(Suppl. 1): 310
- population genetics, cell organelles, DNA, cultured organisms, natural populations: J 51(Suppl. 1): 290
- spawning grounds, geographical distribution, B.C.: TF 1967
- SALMONIDAE**
- fins, bioerosion, length, natural populations, hatcheries: J 51(3): 636
- fishery management, escapement, computer programs, manuals, Vancouver Island, Black Creek: TF 1932
- fishery management, local movements, rivers, Wis., Colo.: J 51(11): 2626
- hydrology, rivers, resource conservation, Fraser River basin, B.C.: MF 2238
- population genetics, DNA, clones, genomes: J 51(Suppl. 1): 258
- Salvelinus alpinus*- see **CHAR, ARCTIC**
- Salvelinus confluentus*- see **TROUT, BULL**
- Salvelinus fontinalis*- see **TROUT, BROOK**
- Salvelinus leucomaenis*- see **CHAR, WHITESPOTTED**
- Salvelinus malma*- see **DOLLY VARDEN**
- Salvelinus namaycush*- see **TROUT, LAKE**
- SARDINE, PACIFIC (*Sardinops sagax*)**
- fishery management, historical account, depleted stocks, B.C.: J 51(2): 460
- Sardinops sagax caeruleus*- see **SARDINE, PACIFIC**
- SASKATCHEWAN (PROVINCE) CANADA**
- phytoplankton, Bacteria, biological production, chlorophylls, primary production, heterotrophic organisms, Humboldt Lake: J 51(10): 2219
- SAUGEYE (*Stizostedion vitreum* X *S. canadensis*)**
- growth, feeding behavior, fish larvae: J 51(9): 1993
- SCALLOP, SEA (*Placopecten magellanicus*)**
- metabolism, phosphorus, scallop culture, spectroscopic techniques, N.S.: J 51(9): 2105
- population structure, shells, Fourier analysis, N.S.: J 51(2): 348
- scallop culture, aquaculture techniques, economic analysis, Passamaquoddy Bay, N.B.: TF 2012
- scallop fisheries, fishery management, stock assessment, historical account, Annapolis Basin, N.S.: MF 2230
- Sciaenops ocellatus*- see **DRUM, RED**
- Scomber scombrus*- see **MACKEREL, ATLANTIC**
- SCOTIAN SHELF**
- marine fish, environmental effects, habitat, geographical distribution, salinity, water depth, water temperature: J 51(3): 589
- SEAL, GREY (*Halichoerus grypus*)**
- harbor seal, census, aerial surveys, Bay of Fundy, N.S.: TF 1943
- SEAL, HARBOR (*Phoca vitulina*)**
- grey seal, census, aerial surveys, Bay of Fundy, N.S.: TF 1943
- SEALWORM (*Pseudoterranova decipiens*)**
- parasitism, population dynamics, demersal fisheries, seals, Northwest Atlantic Ocean: MF 2260
- SEDIMENTATION**
- acidification, palaeoecology, sediment sampling, historical account, Adirondack Park, N.Y.: J 51(7): 1550
- atyd shrimp, bioturbation: J 51(6): 1443
- bluegill, cadmium, pollution effects, growth, Mississippi River: J 51(6): 1356
- carbon, nitrogen, phosphorus, nutrient cycle, freshwater lakes, Wis.: J 51(11): 2457
- chemical limnology, phosphorus, stratification, freshwater lakes, Ont.: J 51(6): 1330
- diatoms, sediment sampling, indicator species, acidification, alkalinity, mathematical models, freshwater lakes, N.Y., ME.: J 51(8): 1855
- geochronometry, coring, varves, biostratigraphy, eutrophication, Experimental Lakes Area: J 51(10): 2274
- manganese, reduction, Oneida Lake, N.Y.: J 51(1): 185
- plankton, primary production, suspended particulate matter, freshwater lakes: J 51(1): 25
- resuspended sediments, seafloor sampling, grain size, marine aquaculture, L'Etang inlet, N.B.: TH 156
- sediment pollution, heavy metals, environmental factors, freshwater lakes, mathematical models, Norway: J 51(8): 1708
- sediment transport, bed load, fire, environmental effects, watersheds, rivers, Experimental Lakes Area: J 51(12): 2723
- shoreline protection, coastal erosion, plant utilization: MF 2226
- SEPIOIDEA**
- age determination, growth, statocysts, analytical techniques: J 51(11): 2612
- SHAD, GIZZARD (*Dorosoma cepedianum*)**
- bluegill, recruitment, prey selection, correlation analysis: J 51(4): 913
- SHELLFISH- see also names of species**
- blue mussel, aquaculture, fishery management, Magdalen Islands: IF 221
- fish disease, manuals, shellfish culture, Canada: TF 1931
- northern shrimp, atlases, fish catch statistics, yield, St. Lawrence Gulf: TF 1900
- pinto abalone, fishery management, stock assessment, fishery survey, Queen Charlotte Islands, B.C.: MF 2166
- sea scallop, scallop culture, aquaculture techniques, economic analysis, Passamaquoddy Bay, N.B.: TF 2012
- SHELLFISH FISHERIES**
- Arctic lyre crab, Atlantic lyre crab, snow crab, exploratory fishery, potential resources, St. Lawrence Gulf, Gaspé Peninsula: TF 1996
- clam fisheries, stock assessment, Georgia Strait, Queen Charlotte Strait, B.C.: TF 1972
- eastern oyster, stock identification, population genetic, enzymes, proteins, Laguna Madre, Tex.: J 51(Suppl. 1): 215

SHELLFISH FISHERIES continued

Northern shrimp, shrimp fisheries, economic analysis, Que.:
EC 143

northern shrimp, Aesop shrimp, gear selectivity: TF 1964

Penaeus, *Metapenaeus*, fishery management, recruitment,
bottom trawls, simulation, Queensland, New Zealand:
J 51(5): 998

sea scallop, fishery management, common property resources,
mathematical models, Georges Bank, North West
Atlantic Ocean: J 51(4): 900

sea scallop, stock assessment, historical account, Annapolis
Basin, N.S.: MF 2230

SHRIMP, AESOP (*Pandalus montagu*)

northern shrimp, gear selectivity: TF 1964

SHRIMP, BROWN (*Penaeus aztecus*)

chemical pollutants, phenols, avoidance reactions: J 51(4): 784

SHRIMP, NORTHERN (*Pandalus borealis*)

Aesop shrimp, gear selectivity: TF 1964

atlases, fish catch statistics, yield, St. Lawrence Gulf: TF 1900
Crustacea, Mollusca, stock assessment, St. Lawrence Gulf, St.
Lawrence Estuary, Que.: MF 2257F

vertical distribution, trophic relationships, food webs, St.
Lawrence Gulf: J 51(1): 123

SHRIMP, OPOSSUM (*Mysis relicta*)

freshwater crustaceans, lipids, seasonal variations, freshwater
lakes, Ont.: J 51(9): 1935

stock identification, electrophoresis, North America, Europe:
J 51(7): 1490

zooplankton, freshwater fish, interspecific relationships,
competition, prey selection, Lake Michigan, Lake
Ontario: J 51(11): 2591

SHRIMPS (*Penaeus* spp.)

Metapenaeus, fishery management, recruitment, bottom trawls,
simulation, Queensland, New Zealand: J 51(5): 998

SIMULIIDAE

aquatic insects, ingestion, insect larvae, current velocity, Que.:
J 51(7): 1615

SMELT, RAINBOW (*Osmerus mordax*)

landing statistics, historical account, Chaleur Bay, N.B.:
DF 933F

SNAPPER, RED (*Lutjanus campechanus*)

black drum, red drum, population genetics, DNA, cell
organelles, stock identification, marine fish, Gulf of
Mexico: J 51(Suppl. 1): 203

SOLE (*Solea solea*)

environmental effects, ambient noise, winds, orientation
behavior: J 51(6): 1258

Solea solea- see **SOLE**

SOUTH AFRICA

galjoen, population genetics, biopolymorphism, dispersion,
mathematical models, De Hoop Marine Reserve:
J 51(6): 1247

marine fish, stock assessment, community composition,
vertical distribution, continental shelf: J 51(1): 99

SPORT FISHING

anadromous species, inland fisheries, development potential,
resource management, N.B.: MF 2216

Atlantic salmon, fry, survival, Miramichi River, N.B.: TF 1982
demersal fisheries, salmon fisheries, sport fishing statistics,
fishery management, North Vancouver, B.C., TF 1973,
TF 1974

economic analysis, sociological aspects, governments, Canada:
EC 148

economic analysis, sport fishing statistics, Great Lakes:
EC 142

pollution, pesticides, pulp waste, N.S., N.B.: TF 1981

SQUAWFISH, NORTHERN (*Ptychocheilus oregonensis*)

fish physiology, blood, oxygen, temperature effects, carbon
dioxide: J 51(1): 13

oxygen consumption, metabolism, fish physiology: J 51(1): 8

Pacific salmon, feeding behavior, prey selection, Bonneville

Dam, Columbia River, Oreg.: J 51(5): 1197

SQUID, FLYING (*Ommastrephes bartramii*)

fisheries management, gillnetters, fish catch statistics, North

Pacific: TF-8

ST. LAWRENCE, GULF OF

American eel, recruitment, resource depletion, St. Lawrence
River estuary: J 51(2): 479

American lobster, exploratory fishing, fishery development,
commercial fishing, Gaspé Peninsula: TF 1980F

American lobster, fishery management, fishery economics,
IF 223, IF 223F

American lobster, nutritive value, processed fishery products,
human food, canned products: IF 225

American lobster, snow crab, stock assessment, trawlers:
TF 1992

Arctic lyre crab, Atlantic lyre crab, snow crab, exploratory
fishery, potential resources, Gaspé Peninsula: TF 1996

Atlantic cod, fishery management, catchability, geographical
distribution: J 51(5): 1046

Atlantic mackerel, fats, body size, seasonal variation: IF 220

Atlantic rock crab, distribution records, seasonal variations,
Chaleur Bay, Anse-à-Beaufils: TF 2014F

demersal fisheries, pelagic fisheries, stock assessment:
MF 2244

fishery statistics, fishery economics, fishery regulations,
economic analysis: EC 136

harbour porpoise, feeding behavior, summer, St. Lawrence
estuary: J 51(1): 172

northern shrimp, vertical distribution, trophic relationships,
food webs: J 51(1): 123

oceanographic data, temperature profiles, salinity profiles,
DH 119(1)f, DH 119(4)f

plankton surveys, larvae, fish eggs, geographical distribution:
TF 2019F

water temperature, oceanographic data, Scotia-Fundy: DH 127

zooplankton, biomass, geographical distribution, fresh water
runoff, advection: J 51(3): 617

ST. LAWRENCE RIVER, ST. LAWRENCE RIVER**ESTUARY**

American eel, chemical pollutants, bioaccumulation, spatial
variation, temporal variation: J 51(2): 464

American eel, recruitment, resource depletion, St. Lawrence
Gulf: J 51(2): 479

SUBJECT INDEX/INDEX SUJET

- chemical pollutants, trace metals, nutrients, historical account: J 51(5): 1088
- fjords, marine ecology, toxicology, conferences, Saguenay Fjord: MF 2270F
- Gammarus fasciatus*, trace metals, bioaccumulation, pollution indicators, St. Lawrence River: J 51(9): 2003
- harbour porpoise, feeding behavior, summer, St. Lawrence Gulf, St. Lawrence estuary: J 51(1): 172
- phytoplankton, biological production, seasonal variations, St. Lawrence Estuary, Laurentian Trough: TF 2006
- plankton, brackishwater environment, primary production: J 51(1): 161
- vertical profiles, temperature profiles, fluorescence, salinity profiles, nitrates: DF 894F
- zebra mussel, colonization, geographical distribution, abundance, physicochemical properties, Hudson River, Oneida Lake, N.Y.: J 51(5): 1024
- STICKLEBACK, BROOK** (*Culaea inconstans*)
- fathead minnow, competition, feeding behavior, organism morphology, turbidity: J 51(7): 1629
- Stizostedion vitreum*- see **WALLEYE**
- SUCKER, WHITE** (*Catostomus commersoni*)
- growth, sexual maturity, food availability, Ont.: J 51(9): 2066
- pollution effects, reproduction, forest industry, chlorine compounds, St. Maurice River, Que.: J 51(2): 337
- SUNFISH** (*Lepomis* spp.)
- fish physiology, vision, body size, correlational analysis: J 51(9): 2017
- SWEDEN**
- Bacteria, acidification, dystrophic lakes, buffers, microbiology, freshwater lakes: J 51(11): 2529
- demersal fisheries, feeding behavior, eutrophication, hypoxia: J 51(2): 321
- Eurasian perch, indicator species, pollution effects, pulp wastes: J 51(10): 2195
- SWITZERLAND**
- whitefish, fish eggs, population dynamics, mortality, eutrophic lakes, environmental factors, Sempach Lake: J 51(9): 1908
- Tetrapturus audax*- see **MARLIN, STRIPED**
- TEXAS (STATE) USA**
- eastern oyster, stock identification, population genetic, enzymes, proteins, Laguna Madre: J 51(Suppl. 1): 215
- Thunnus albacares*- see **TUNA, YELLOWFIN**
- Thunnus obesus*- see **TUNA, BIGEYE**
- Thymallus arcticus*- see **GRAYLING, ARCTIC**
- TOXICITY**
- aquatic environment, toxicants, Canada: TF 1989
- fathead minnow, pollution effects, chlorine compounds, growth, population density: J 51(2): 365
- mangrove rivulus, toxicity tests, cadmium, indicator species, brackishwater environment: J 51(2): 280
- rainbow trout, bioaccumulation, aromatic hydrocarbons, Mammalia: J 51(7): 1577
- rainbow trout, juveniles, aluminium, pH, humic acids, toxicity tests: J 51(6): 1345
- TROUT, BROOK** (*Salvelinus fontinalis*)
- acidification, aluminium, mortality, rivers, Pa.: J 51(7): 1620
- acidification, survival, Woods Lake, Adirondack Mountains, N.Y.: J 51(4): 792
- brown trout, rainbow trout, *Bacillus thuringiensis* var. *israelensis*, pesticides, toxicity tests: J 51(6): 1451
- feeding behavior, multivariate analysis, biotic factors, abiotic factors, spatial variations, freshwater lakes, Laurentian Shield, Que.: J 51(12): 2856
- feeding behavior, prey selection, local movements, water column: J 51(2): 268
- TROUT, BROWN** (*Salmo trutta*)
- Atlantic salmon, genetics, growth, survival, polyploids, hybrids: J 51(Suppl. 1): 16
- biological stress, enzymatic activity, pollution indicators, rivers, St. John's, Newfoundland: TF 1947
- brook trout, rainbow trout, *Bacillus thuringiensis* var. *israelensis*, pesticides, toxicity tests: J 51(6): 1451
- population dynamics, sexual maturity, natural populations, body conditions: J 51(9): 1920
- TROUT, BULL** (*Salvelinus confluentus*)
- Arctic char, Dolly Varden, white spotted char, phylogenetics, evolution, population genetics, biological speciation: J 51(Suppl. 1): 180
- TROUT, CUTTHROAT** (*Oncorhynchus clarki*)
- life history, phenotypic variations, temporal variations, spatial variations, population genetics, Yellowstone Lake, Wyo.: J 51(Suppl. 1): 298
- TROUT, LAKE** (*Salvelinus namaycush*)
- bioaccumulation, mercury, trophic structure, food chains, freshwater lakes: J 51(2): 381
- habitat, spawning populations: TF 1962
- PCB, pollution effects, fry, survival: J 51(6): 1410
- rainbow trout, polychlorinated biphenyls, mathematical models, bioaccumulation, comparative studies, Michigan Lake: J 51(4): 800
- sea lamprey, predation, species extinction, mathematical models, Great Lakes: J 51(4): 942
- TROUT, RAINBOW** (*Oncorhynchus mykiss*)
- aluminium, pH, humic acids, toxicity tests, juveniles: J 51(6): 1345
- Arctic char, diets, fatty acids, growth, lipids, metabolism: J 51(6): 1391
- bioaccumulation, aromatic hydrocarbons, Mammalia: J 51(7): 1577
- bioaccumulation, gills, metals, fresh water: J 51(11): 2482
- brook trout, brown trout, *Bacillus thuringiensis* var. *israelensis*, pesticides, toxicity tests: J 51(6): 1451
- chinook salmon, coho salmon, genetics, polyploids, saline water, biological fertilization, genetic abnormalities: J 51(Suppl. 1): 42
- chlorine compounds, sublethal effects, pulp wastes, swimming, disease resistance: J 51(9): 1967
- fish culture, fish diseases, gills, skin, therapy, evaluation: J 51(8): 1728
- fish physiology, electric fishing, fish handling, mortality: J 51(8): 1791
- fish physiology, electric fishing, swimming: J 51(8): 1799
- metabolism, aluminium, acclimation, J 51(3): 527, J 51(3): 536

- TROUT, RAINBOW** (*Oncorhynchus mykiss*) continued
 genetics, cell organelles, DNA, spawning populations, cultured organisms, natural populations, Ont.: J 51(Suppl. 1): 284
 lake trout, polychlorinated biphenyls, mathematical models, bioaccumulation, comparative studies, Michigan Lake: J 51(4): 800
 pollution effects, arsenic compounds, growth: J 51(2): 372
 population genetics, DNA, nucleotides: J 51(Suppl. 1): 252
 trout, steelhead- *see* **TROUT, RAINBOW**
- TUNA, BIGEYE** (*Thunnus obesus*)
 dungeness crab, fishery management, biological production, potential yield, mathematical models: J 51(8): 1823
- TUNA, SKIPJACK** (*Katsuwonus pelamis*)
 fishery management, tagging, attracting techniques, local movements, Solomon Island: J 51(12): 2642
- TUNA, YELLOWFIN** (*Thunnus albacares*)
 fishery management, stock assessment, growth curves, biological age, length, mathematical models, Atlantic ocean: J 51(3): 723
 stock assessment, spatial variations, migrations, mathematical models, east Pacific ocean: J 51(9): 2027
- USA**
 marine fish, fishery management, stock assessment, fishery policy, risks, evaluation, USA coasts: J 51(12): 2715
 sockeye salmon, stock identification, fishery management, population genetics, homing behavior, freshwater lakes, Canada, Russia: J 51(Suppl. 1): 145
- VERMONT (STATE) USA**
 Atlantic salmon, survival, stocking density, fry, growth, White River, Vt.: J 51(10): 2164
- WALLEYE** (*Stizostedion vitreum*)
 age determination, scale reading: J 51(8): 1721
 feeding behavior, prey selection, fish larvae: J 51(9): 2077
 fishery management, genetic drift, mathematical models, Red Lakes, Minn.: J 51(4): 774
 northern pike, bioaccumulation, mercury, pollution indicators, mathematical models: J 51(9): 2090
 reproduction, sexual maturity, bioenergetics, Lake Erie: J 51(5): 986
- WALRUS, ATLANTIC** (*Odobenus rosmarus rosmarus*)
 bioaccumulation, heavy metals, selenium, Arctic: J 51(2): 426
- WALRUS** (*Odobenus rosmarus*)
 hunting, economic analysis, sociological aspects, Foxe Basin, N.W.T.: TF 2011
 stock assessment, fishery management, resource conservation, conferences, world oceans: TF 1940
- WASHINGTON (STATE) USA**
 Atlantic salmon, fish physiology, enzymatic activity, hormones, Puget Sound: J 51(3): 567
 chum salmon, population genetics, fishery management, stock identification, electrophoresis, B.C.: J 51(Suppl. 1): 65
 forest industry, environmental impact, rivers, morphometry: J 51(1): 37
- WATER QUALITY**
 Canadian beaver, aquatic mammals, ice cover, Catamaran Brook, Little Southwest Miramichi River, N.B.: TF 1986
- WEDGECLAM, GILDED** (*Mesodesma deauratum*)
 population structure, relict species, geographical distribution, Grand Banks, Northwest Atlantic Ocean: J 51(5): 1162
- WHALE, WHITE** (beluga)
Delphinapterus leucas, distribution records, migrations, satellite communication, Arctic Archipelago: J 51(7): 1653
- WHELK, BLuish** (*Buccinum cyaneum cyaneum*)
 sexual maturity, females, body size, fecundity, Saguenay Fjord, Que.: J 51(12): 2866
- WHITEFISH** (*Coregonus* spp.)
 fish eggs, mortality, eutrophic lakes, environmental factors, population dynamics, Sempach Lake, Switzerland: J 51(9): 1908
 phylogenetics, cell organelles, DNA, interglacial periods, Eurasia, North America: J 51(Suppl. 1): 240
- WISCONSIN (STATE) USA**
Aphanizomenon flos-aquae, *Ceratium hirundinella*, *Cryptomonas erosa*, *Microcystis aeruginosa*, recruitment, vertical migrations, algal blooms, eutrophic lakes: J 51(12): 2825
 Salmonidae, fishery management, local movements, rivers, Colo.: J 51(11): 2626
 sedimentation, carbon, nitrogen, phosphorus, nutrient cycle, freshwater lakes: J 51(11): 2457
 zebra mussel, population density, geographical distribution, colonization, mathematical models: J 51(5): 1189
- WORLD OCEANS**
 salmon, fishery management, governments, political aspects, fishery economics, resource conservation, fishery organization, B.C.: J 51(10): 2363
- WYOMING (STATE) USA**
 cutthroat trout, life history, phenotypic variations, temporal variations, spatial variations, population genetics, Yellowstone Lake: J 51(Suppl. 1): 298

AUTHOR INDEX/INDEX PAR AUTEUR

- Aboul Hosn, W.: J 51(8): 1832
 Abrahams, M.V.: J 51(7): 1629
 Adams, N.S.: J 51(Suppl. 1): 170
 Adare, K.I.: J 51(9): 1935, TF 1993
 Aebersold, P.B.: J 51(Suppl. 1): 95
 Ages, A.B., DH 126, DH 133
 Aguilar, C.: J 51(1): 185
 Aitkens, F.: TF 1948
 Albright, L.J.: J 51(11): 2493
 Aldrich, D.V.: J 51(4): 784
 Alexander, D.R., DF 946, DF 946F
 Alexander, J.E., Jr.: J 51(1): 179
 Alexander, V.: J 51(6): 1338
 Allard, J.-P.: TF 2019F
 Allen, Y.: J 51(12): 2825
 Amiro, P.G.: J 51(3): 662
 Amrhein, J.F.: J 51(6): 1384
 Amyot, M.: J 51(9): 2003
 Andersen, Ø.: J 51(9): 1985
 Andersen, B.C.: J 51(5): 1139
 Anderson, D.S.: J 51(8): 1855
 Anderson, J., J 51(6): 1297, TF 2000
 Anderson, L.E.: TF 2011
 Anganuzzi, A.: J 51(3): 734
 Angel, J.R.: TF 1979
 Arai, M.N.: TF 1939
 Archambault, D.: TF 1983
 Armstrong, D.E.: J 51(11): 2457
 Arthur, A.D.: J 51(2): 365
 Arts, M.S.: J 51(10): 2219
 Asselin, S.: MF 2220F
 Atchison, G.J.: J 51(6): 1356
 Atkinson, G.: DF 919
 Attwood, C.G.: J 51(6): 1247
 Audet, C.: J 51(11): 2448
 Axler, R.P.: J 51(6): 1281
- Babaluk, J.A., TF 1950, TF 1951
 Baccus, R.: J 51(Suppl. 1): 84
 Baddaloo, E.G.: TF 1942
 Bailey, R.F.J.: IF 224
 Bailey, W.L., J 51(1): 142, J 51(12): 2834
 Baines, S.B.: J 51(1): 25
 Bajdik, C.: J 51(1): 78
 Baker, A.J.: J 51(6): 1218
 Baldwin, R.T.: J 51(12): 2695
 Bams, R.A.: TF 1933
 Barange, M.: J 51(1): 99
 Barker, D.E.: J 51(10): 2203
 Barrette, C.: J 51(1): 172
 Barrowman, N.J.: TF 1966
 Barwell-Clarke, J.: DH 129
 Bastien-Daigle, S., MF 2226, MF 2226F
 Batterman, A.R.: J 51(6): 1410
 Beacham, T.D., J 51(Suppl. 1): 267, J 51(6): 1430
- Beamish, F.W.H.: J 51(9): 2045
 Beamish, R.J., J 51(12): 2843, TF 1948
 Beaty, K.G., J 51(5): 1065, J 51(12): 2723
 Beckenbach, A.T.: J 51(7): 1608
 Beeman, J.W.: J 51(4): 836
 Bégout, M.L.: J 51(6): 1258
 Beitinger, T.L.: J 51(2): 437
 Bell, J.: TF 1948
 Bellows, W.K.: J 51(4): 881
 Benfield, M.C.: J 51(4): 784
 Bennett, B.A.: J 51(6): 1247
 Bennett, W.A.: J 51(2): 437
 Benoit, J.: TF 1900
 Bentzen, P.: J 51(9): 1959
 Bergeron, P., IF 221, IF 221F
 Bergh, Ø.: J 51(8): 1899
 Bergman, H.L., J 51(3): 527, J 51(3): 536
 Berini, C.: J 51(6): 1410
 Bernatchez, L.: J 51(Suppl. 1): 240
 Bernier, D.: TF 1996F
 Bernier, L.M.J.: TF 1910
 Bernier, N.J., J 51(4): 981, J 51(10): 2170, J 51(10): 2179
 Bertrand, N.: J 51(1): 161
 Besner, M.: J 51(11): 2448
 Bielak, A.T.: TF 1982
 Birks, H.J.B., J 51(7): 1550, J 51(10): 2300
 Birtwell, I.K.: J 51(8): 1780
 Bjørnevik, M.: J 51(2): 315
 Black, A.R.: J 51(7): 1634
 Blake, G.A.: J 51(6): 1443
 Blankenship, H.L.: J 51(Suppl. 1): 65
 Blom, G.: J 51(5): 1012
 Bloom, N.S.: J 51(5): 1065
 Bodaly, R.A.: DF 921
 Boe, C.: J 51(7): 1462
 Bohlin, T.: J 51(9): 1920
 Bois, Y.: TF 1989
 Boisclair, D., J 51(5): 1119, J 51(11): 2558
 Bols, N.C.: J 51(7): 1577
 Bonneau, E.: J 51(4): 881
 Boom, J.D.G.: J 51(7): 1608
 Booth, D.A.: TF 1945
 Borgmann, U.: J 51(3): 693
 Bosakowski, T.: J 51(3): 636
 Bott, T.L.: J 51(2): 295
 Boucher, J., EC 127, EC 133F, EC 137
 Boulding, E.G.: J 51(7): 1608
 Boulos, D.L., TF 1934, TF 1964
 Bourne, N.F.: TF 1972
 Bowen, S.H.: J 51(11): 2380
 Boylen, C.W.: J 51(1): 20
 Bradford, M.J.: J 51(4): 965
 Brandt, S.B.: J 51(11): 2568
 Brauner, C.J.: J 51(10): 2188
 Bremigan, M.T.: J 51(4): 913

- Brêthes, J.-C.F.: IF 224
 Brock, I.R.: J 51(Suppl. 1): 31
 Brooker, A.L.: J 51(9): 1959
 Brothers, G., TF 1934, TF 1964
 Brown, T.G.: J 51(5): 1139
 Brown, T.J.: TF 1967
 Brunskill, G.J.: J 51(10): 2274
 Bryan, J.D.: J 51(4): 890
 Brylinsky, M.: J 51(3): 650
 Bue, B.G.: J 51(Suppl. 1): 42
 Bukaveckas, P.A.: J 51(1): 20
 Burger, C.V.: J 51(Suppl. 1): 170
 Burke, D.L.: TF 1979
 Bustaman, S.: J 51(6): 1345
 Butler, M.G.: J 51(5): 1180
 Butterworth, B.C.: J 51(6): 1410
- Cabana, G.: J 51(2): 381
 Cairns, V.W., J 51(8): 1804, TF 1936, TF 1941
 Caissie, D., DF 946, DF 946F
 Campana, S.E.: J 51(9): 1942
 Campbell, P., J 51(10): 2243, J 51(12): 2721, J 51(12): 2739, J 51(12): 2784
 Campbell, P.G.C., J 51(9): 2003, TF 1989
 Campeau, S.: J 51(3): 681
 Capel, M.J.: J 51(9): 1951
 Carder, G.W.: DF 910
 Carey, J.H.: J 51(2): 337
 Carignan, R.: J 51(5): 1088
 Carline, R.F.: J 51(7): 1620
 Carlton, J.T.: DF 937
 Carmack, E.C.: DH 129
 Carolsfeld, W.: MF 2166
 Carpenter, S.R., J 51(4): 800, J 51(6): 1384
 Carscadden, J.E.: J 51(3): 642
 Carter, J.C.H.: J 51(6): 1330
 Cass, A.J.: J 51(8): 1839
 Castleberry, D.T., J 51(1): 8, J 51(1): 13
 Castonguay, M., J 51(2): 464, J 51(2): 479
 Cave, J.D.: J 51(7): 1535
 Cawdell, G.: TF 1972
 Cech, J.J., Jr., J 51(1): 8, J 51(1): 13, J 51(7): 1519, J 51(7): 1528
 Chadwick, M.: TF 1956
 Chalmers, D.D.: IF 218
 Chang, B.D.: MF 2269
 Chang, E.S.: J 51(8): 1774
 Chang, H.-H.: J 51(2): 280
 Chang, P.S.S., J 51(10): 2312, MF 2223
 Chang-Kue, K.T.J.: DF 930
 Chaput, G., IF 222, TF 2000
 Charles, J.: TF 1955
 Charpentier, B.: J 51(7): 1615
 Chen, H.M.: J 51(1): 1
- Chen, Y., J 51(6): 1420, J 51(9): 2066
 Cheng, J.-H.: J 51(8): 1774
 Chick, J.H.: J 51(12): 2873
 Chiperzak, D.B., DF 912, DF 922, DF 923, DF 924
 Chow-Fraser, P.: J 51(9): 2052
 Christie, C.E., J 51(10): 2300, J 51(10): 2322
 Chung, H.-S.: J 51(2): 280
 Cimon-Melanson, L.: IF 225
 Claxton, W.T.: J 51(5): 1110
 Claytor, R.: IF 222
 Claytor, R.R.: J 51(6): 1322
 Clemons, J.H.: J 51(7): 1577
 Cobb, D.G., DF 928, MF 2223, MF 2261, TF 1995
 Cobb, J.S.: J 51(2): 286
 Cobb, L.M.: TF 1932
 Colbourne, E.: TH 150
 Colbourne, E.B., DH 124, TH 159, TH 160
 Collicutt, L.D., TF 1973, TF 1974
 Collie, J.S.: J 51(12): 2665
 Collins, N.C.: J 51(3): 701
 Comeau, L.: TF 2006
 Comeau, M., IF 225, TF 1992
 Comeau, P.A.: TF 1953
 Conan, G.Y.: TF 1992
 Cong, L.Z.: TH 161
 Conlon, M.: J 51(11): 2424
 Conover, D.O.: J 51(8): 1752
 Conquest, L.L., J 51(1): 37, J 51(5): 1077
 Cook, D.: J 51(9): 1959
 Cook, P.M.: J 51(6): 1410
 Cope, W.G.: J 51(6): 1356
 Cordue, P.L.: J 51(4): 817
 Cormier, A.: IF 225
 Cornett, R.J.: J 51(8): 1769
 Cosens, S.E.: MF 2224
 Couillard, C.M., J 51(2): 464, J 51(2): 479, MF 2270F
 Courtenay, S.: DF 933F
 Courtenay, S.C.: IF 222
 Cowan, C.A.: J 51(2): 450
 Cox-Rogers, S., MF 2219, MF 2256
 Craig, P.C.: J 51(9): 2090
 Crane, P.A.: J 51(Suppl. 1): 180
 Crawford, R.: MF 2224
 Creaser, S.: DH 127
 Crivelli, A.J.: J 51(3): 506
 Crowder, A.: TF 1936
 Cruikshank, D.R., DF 911, DF 941
 Cumming, B.F.: J 51(7): 1550
 Cummings, S.A.: J 51(Suppl. 1): 252
 Currens, K.P.: J 51(Suppl. 1): 170
 Curtis, L.R.: J 51(6): 1345
 Cury, P.: J 51(7): 1664
 Cutting, R.E.: J 51(3): 662
 Cyr, C., TF 1980F, TF 2014F

AUTHOR INDEX/INDEX PAR AUTEUR

- D'Amours, D.: J 51(4): 881
D'Amours, P.: DF 933F
D'Astous, A.: DH 132
Døving, K.B.: J 51(9): 1985
Dadswell, M.J.: TF 2012
Dahle, G.: J 51(Suppl. 1): 233
Daniel, C.J.: MF 2234
Daniels, T.J.: J 51(Suppl. 1): 196
Danylchuk, A.J.: J 51(3): 490
Danzmann, R.G.: J 51(Suppl. 1): 284, J 51(6): 1322
Davey, K.A.: J 51(7): 1550
Davidson, K.: TF 1982
Davidson, W.S.: J 51(Suppl. 1): 277
Davis, R.B.: J 51(8): 1855
de Lafontaine, Y.: J 51(3): 617
de March, B.G.E.: MF 2224
De Melo, R.: J 51(4): 873
DeBruyn, E.R.: J 51(12): 2734
Decterow, G.M.: TF 1951
deFreitas, A.S.W.: J 51(9): 2105
DeGrâce, M.: IF 225
Delaney, G.: DF 919
Dellefors, C.: J 51(9): 1920
Department of Fisheries and Oceans, AR. EC 93, EC 136,
EC 140, EC 142, EC 148, MF 2236, MF 2244
Dermott, R.: TF 2018
Desgagnés, M.: TF 1900
Desjardins, C.: J 51(2): 464
Desser, S.S.: J 51(4): 959
DeTracey, B.M.: DH 128
Devine Castonguay, L.: DF 894F
deYoung, B.: J 51(6): 1297
DiBacco, T.G.: TF 1969
Dick, T.A.: J 51(6): 1391
Dickhoff, W.W.: J 51(3): 567
Digou, D.: EC 144
Dionne, H.: IF 220F
Dionne, J.: DH 132
Dixon, D.G.: J 51(2): 365, J 51(2): 372, J 51(7): 1577
Do, C.: J 51(Suppl. 1): 310
Dodson, J.: J 51(4): 984
Dodson, J.J.: J 51(Suppl. 1): 240, J 51(2): 337
Donaldson, E.M.: TF 1901, TF 1955
Donaldson, W.E.: J 51(6): 1273
Doroshov, S.I.: J 51(Suppl. 1): 38
Dosanjh, B.S.: J 51(9): 1975
Downing, J.A.: J 51(8): 1832
Doyle, R.W.: J 51(9): 1959
Dredge, M.: J 51(5): 998
Drinkwater, K.F.: DH 125
Drinnan, R.E.: TF 1931
Dufour, R.: TF 1996F
Dufresne, L.: J 51(12): 2866
Dupuis, R.: EC 126, EC 127
Dutil, J.-D.: IF 224, J 51(2): 479, J 51(7): 1569, J 51(11): 2448
Eagles, M.D.: TF 2021
Eales, J.G.: J 51(9): 1975
Easter, S.S., Jr.: J 51(9): 2017
Eckersley, M.J.: J 51(2): 479
Economic and Policy Analysis Directorate: EC 148
El-Jabi, N.: DF 946, DF 946F
Elner, R.W.: J 51(5): 1110, TF 2021
Evans, M.S.: J 51(9): 2149, J 51(10): 2219
Everett, R.J.: J 51(Suppl. 1): 84, J 51(Suppl. 1): 132,
J 51(Suppl. 1): 145
Fancey, L.: TF 1947
Fardy, P.: J 51(6): 1297
Faremo, U.: J 51(9): 1920
Fargo, J.: J 51(2): 357, J 51(6): 1401
Farlinger, S.: MF 2166
Farrell, A.P.: J 51(9): 1967
Farwell, M.K.: MF 2200, MF 2208, MF 2241, MF 2242
Fausch, K.D.: J 51(11): 2626
Fechhelm, R.G.: J 51(4): 890
Fedorenko, A.Y.: MF 2118
Fee, E.J.: J 51(12): 2734, J 51(12): 2756, J 51(12): 2769
Feldman, M.W.: J 51(Suppl. 1): 223
Fell, R.D.: J 51(1): 179
Ferguson, M.M.: J 51(Suppl. 1): 284
Findlay, C.S.: J 51(4): 856
Findlay, D.: J 51(9): 2052
Findlay, D.L.: J 51(10): 2247, J 51(10): 2254, J 51(10): 2267,
J 51(10): 2286, J 51(10): 2300, J 51(12): 2794
Fitzpatrick, C.: TH 159
Fitzsimons, J.D.: TF 1962
Fjeld, E.: J 51(8): 1708
Flannagan, J.F.: DF 928, MF 2223, MF 2261, TF 1995
Flannagan, P.M.: MF 2261
Flato, G.M.: TH 158
Fleming, I.A.: J 51(12): 2808
Fletcher, G.L.: J 51(12): 2834
Flett, R.J.: J 51(5): 1065
Fontaine, P.M.: J 51(1): 172
Foote, K.D.: TH 160
Forbes, L.S.: J 51(3): 603
Ford, J.: J 51(8): 1855
Fore, L.S.: J 51(5): 1077
Forrester, G.E.: J 51(11): 2549
Fort, C.: TF 1971
Foster, G.D.: J 51(3): 567
Fournier, D.A.: J 51(5): 1212
Fowler, A.J.: J 51(9): 1942
Fowler, G.A.: TH 153
Fowler, G.M.: TF 1943
Fox, M.G.: J 51(3): 490
Fradette, P.: TF 1980F
Francis, R.I.C.C.: J 51(4): 817
Frank, K.T.: J 51(4): 808
Fréchette, M.: IF 221, IF 221F

- Freeman, K.R.: TF 1969
 Friedland, K.D.: J 51(1): 91
 Frith, H.R.: MF 2251
 Fudge, R.J.P.: DF 921
 Full, W.E.: J 51(2): 348
 Furman, C.: J 51(Suppl. 1): 203

 Gadowski, D.M.: J 51(5): 1197
 Gagen, C.J.: J 51(7): 1620
 Gagnon, M.M.: J 51(2): 337
 Gahnström, G.: J 51(11): 2529
 Galbraith, M.: DH 129
 Galbreath, P.F.: J 51(Suppl. 1): 16
 Gallaway, B.J.: J 51(4): 890
 Gamble, J.: TF 1966
 Gan, C.: J 51(Suppl. 1): 290
 Garaicoechea, C.: TF 1992
 García-Vázquez, E.: J 51(2): 248
 Garlich-Miller, J.: TF 2011
 Garneau, F., EC 130, EC 133F
 Gascon, D., MF 2253, MF 2253F
 Gascuel, D.: J 51(3): 723
 Gates, R.B.: J 51(Suppl. 1): 31
 Gauldie, R.W., J 51(3): 545, J 51(10): 2333, J 51(10): 2341
 Gazey, W.J.: J 51(7): 1535
 Gendron, L., MF 2247, TF 1980F, TF 2014F
 Gharrett, A.J., J 51(Suppl. 1): 1, J 51(Suppl. 1): 9, J 51(Suppl. 1): 25, J 51(Suppl. 1): 50, J 51(Suppl. 1): 223
 Gibson, J.: J 51(3): 650
 Gillespie, G.E., TF 1973, TF 1974
 Glubokovsky, M.K.: J 51(Suppl. 1): 223
 Goddard, S.V.: J 51(12): 2834
 Goksøyr, A.: J 51(2): 315
 Gold, J.R.: J 51(Suppl. 1): 203
 Goldman, C.R.: J 51(4): 862
 Goodchild, G.A.: MF 2235
 Gordon, D.C., Jr.: J 51(3): 650
 Gosset, C.: TF 1992
 Govind, C.K.: J 51(5): 1110
 Gowan, C.: J 51(11): 2626
 Goyke, A.P.: J 51(11): 2603
 Granéli, W.: J 51(11): 2529
 Grant, J.W.A.: J 51(2): 268
 Grantham, B.A.: J 51(7): 1600
 Gratton, Y., DF 894F, TF 2006
 Graves, J.E.: J 51(8): 1762
 Greatbatch, R.J.: J 51(6): 1297
 Greenless, K.J.: J 51(5): 1205
 Grégoire, F., DF 947, DF 947F, IF 220F
 Gregory, D.N.: DH 127
 Greig, L.A.: MF 2216
 Gresswell, R.E.: J 51(Suppl. 1): 298
 Grewe, P.M.: J 51(5): 1101
 Gribble, N.: J 51(5): 998

 Griffiths, W.B.: J 51(4): 890
 Groot, C.: J 51(2): 441
 Gross, M.R.: J 51(12): 2808
 Gu, B.: J 51(6): 1338
 Guderley, H.: J 51(4): 984
 Gui, Q.Y.: DH 128
 Guildford, S.J.: J 51(12): 2769
 Gundersen, D.T.: J 51(6): 1345
 Guthrie, C.M.: J 51(Suppl. 1): 50
 Guy, M.: J 51(6): 1330
 Gyselman, E.C.: J 51(9): 1927

 Haag, K.H.: J 51(7): 1634
 Haaga, J.A.: J 51(6): 1273
 Habicht, C.H.: J 51(Suppl. 1): 31
 Hairston, N.G., Jr.: J 51(9): 2017
 Hajen, W.E.: TF 1901
 Hall, R.J.: J 51(8): 1877
 Halliday, R.G.: MF 2225
 Halvorsen, M.: J 51(6): 1229
 Hambrook, M.: TF 1982
 Hamilton, P.B.: TF 1957
 Hamilton, R.E.: MF 2238
 Hammill, M.O., J 51(1): 172, MF 2220F
 Hampton, I.: J 51(1): 99
 Hampton, J.: J 51(12): 2642
 Hann, B.J., J 51(7): 1600, J 51(10): 2312, J 51(10): 2322
 Hanson, M.A.: J 51(5): 1180
 Hansson, L.-A.: J 51(12): 2825
 Harboe, T.: J 51(8): 1899
 Hardie, A.K.: J 51(11): 2411
 Hardy, D.: IF 224
 Hargreaves, N.B.: J 51(2): 460
 Harrison, P.J.: J 51(12): 2843
 Hartl, D.L., Smoker, W.W.: J 51(Suppl. 1): 4
 Hartley, S.E.: J 51(Suppl. 1): 277
 Harvey, H.H.: J 51(9): 2066
 Hatt, K., TF 1958, TF 1959
 Haug, E.: J 51(9): 1985
 Haux, C.: J 51(8): 1700
 Hawkins, S.L.: J 51(Suppl. 1): 50
 Hayward, J.: TF 1982
 Healey, C.G.: J 51(2): 441
 Healey, J.: TF 1929
 Healey, M.: J 51(9): 2115
 Healey, M.C., J 51(2): 441, J 51(3): 577
 Hearn, W.S.: J 51(8): 1689
 Heath, D.D.: J 51(4): 981
 Heath, J.W.: J 51(4): 981
 Heath, S.: J 51(2): 437
 Hebert, P.D.N.: J 51(4): 873
 Hecky, R.E., J 51(10): 2243, J 51(10): 2247, J 51(10): 2254, J 51(12): 2721, J 51(12): 2756, J 51(12): 2769, J 51(12): 2784

AUTHOR INDEX/INDEX PAR AUTEUR

- Heculuck, D.M.: J 51(Suppl. 1): 284
 Heintz, R.: J 51(Suppl. 1): 25
 Helle, J.H.: J 51(Suppl. 1): 50
 Henderson, B.A.: J 51(5): 986
 Hendzel, L.L.: J 51(10): 2247, J 51(10): 2254, J 51(12): 2756,
 J 51(12): 2769, J 51(12): 2794
 Heritage, G.D.: TF 1972
 Hesslein, R.: J 51(9): 1951
 Heuring, L.G.: TF 1950
 Hickey, W.M.: TF 1934, TF 1964
 Higgs, D.A.: J 51(9): 1975
 Hilborn, R.: J 51(3): 734, J 51(12): 2673
 Hinch, S.G.: J 51(3): 701
 Hodson, P.V.: J 51(2): 337, J 51(2): 464, J 51(2): 479
 Hoenig, J.M.: J 51(3): 642, J 51(8): 1823
 Hollowed, A.B.: J 51(12): 2695
 Holm, J.C.: J 51(5): 1012, J 51(8): 1893
 Holmes, J.A.: J 51(2): 253, J 51(9): 2045
 Hooper, L.: J 51(9): 2105
 Hooper, R.: J 51(10): 2203
 Hopkins, T.E.: J 51(1): 8, J 51(1): 13
 Hopky, G.E.: DF 912, DF 922, DF 923, DF 924
 Howell, E.T.: J 51(12): 2784
 Howse, K.A.: J 51(1): 142, J 51(12): 2834
 Hudon, C.: J 51(6): 1308, J 51(11): 2467
 Hufnagle, L.C.: J 51(6): 1410
 Hughes, N.F.: J 51(10): 2154
 Hunt, H.G.: TF 1966
 Hurley, J.P.: J 51(11): 2457
 Hurtubise, S.: TF 1900
 Hutcheson, M.S.: J 51(5): 1162
 Hutchings, J.A.: J 51(9): 2126
 Hyllner, S.J.: J 51(8): 1700
- Ikeda, M.: TH 161
 Ingraham, W.J., Jr.: J 51(2): 441
 Irvine, J.R.: TF 1932
 Ito, S.: J 51(3): 501
 Iwama, G.K.: J 51(4): 981, J 51(10): 2170, J 51(10): 2188
 Izquierdo, J.T.: J 51(2): 248
- Jørgensen, L.: J 51(6): 1229
 Jørstad, K.E.: J 51(Suppl. 1): 233, J 51(5): 1012
 Jackson, A.E.: J 51(9): 2105
 Jackson, C.-J.C.: TF 1993
 Jackson, D.A.: J 51(6): 1420
 Jackson, G.D.: J 51(11): 2612
 Jackson, J.K.: J 51(2): 295
 Jackson, L.J.: J 51(8): 1769
 Jantz, L.: MF 2219
 Jarboe, H.H.: J 51(5): 1205
 Jensen, A.L.: J 51(4): 942
 Jensen, J.P.: J 51(8): 1692
 Jeppesen, E.: J 51(8): 1692
 Jessop, B.M.: TF 2015
 Jessop, E.F.: DF 930
- Johannsson, O.E.: J 51(11): 2570, J 51(11): 2591
 Johansen, J.A.: J 51(9): 1967
 Johengen, T.H.: J 51(11): 2570
 Johnson, L.: J 51(1): 209, J 51(1): 226
 Johnson, T.B.: J 51(12): 2825
 Johnston, T.A.: J 51(9): 2077
 Jones, C.M.: J 51(9): 1942
 Jones, R.I.: J 51(7): 1490
 Jonsson, B.: J 51(12): 2808
 Joo, W.N.: J 51(2): 280
 Joyce, J.E.: J 51(Suppl. 1): 9, J 51(Suppl. 1): 25, J 51(Suppl. 1): 38
 Juanes, F.: J 51(8): 1752
 Juinio, M.A.R.: J 51(2): 286
 Junger, M.: J 51(1): 52
- Kaeriyama, M.: J 51(6): 1430
 Kahl, J.S.: J 51(8): 1855
 Kalff, J.: J 51(2): 381, J 51(8): 1769
 Kalnin, L.W.: MF 2200, MF 2208, MF 2241, MF 2242
 Kao, M.H.: J 51(12): 2834
 Kaplan, L.A.: J 51(2): 295
 Kapuscinski, A.R.: J 51(4): 774
 Karr, J.R.: J 51(5): 1077
 Kashkin, K.A.: J 51(1): 197
 Kasian, S.E.M.: J 51(12): 2769, J 51(12): 2794
 Keleher, C.: J 51(4): 792
 Keller, M.D.: J 51(4): 881
 Keller, W.: J 51(1): 151, J 51(11): 2424
 Kelly, C.A.: J 51(5): 1065
 Kelso, J.R.M.: TF 1993
 Kenchington, E.L.: J 51(2): 348, MF 2230
 Kenchington, T.J.: MF 2225
 Kennedy, C.J.: J 51(9): 1967
 Kennedy, J.: J 51(2): 437
 Khan, R.A.: J 51(10): 2203
 Kiessling, A.: J 51(9): 1975
 Kilfoil, M.: MF 2216
 Kim, Y.: J 51(Suppl. 1): 252
 King, S.W.: MF 2209
 King, T.L.: J 51(Suppl. 1): 215
 Kingsley, M.C.: J 51(1): 172
 Kircheis, F.W.: J 51(1): 62
 Kjesbu, O.S.: J 51(8): 1893
 Kleiber, P.: J 51(12): 2642
 Kleinow, K.M.: J 51(5): 1205
 Kling, H.J.: J 51(10): 2267, J 51(10): 2274, J 51(10): 2300,
 J 51(10): 2322, J 51(12): 2769
 Kobak, C.J.: J 51(2): 417
 Koeller, P.: TF 1983
 Kojima, H.: J 51(6): 1265
 Komadina-Douthwright, S.M.: TF 1986
 Komárek, J.: J 51(10): 2267
 Kondzela, C.M.: J 51(Suppl. 1): 50
 Korman, J.: J 51(3): 662, MF 2234
 Kornfield, L.: J 51(1): 62

- Koutnik, M.A.: J 51(5): 1189
 Kramer, D.L.: J 51(2): 268
 Kristensen, P.: J 51(8): 1692
 Kristoffersen, K.: J 51(6): 1229
 Krohn, M.M.: J 51(5): 1119
 Krueger, C.C.: J 51(4): 792
 Krupyanko, N.I.: J 51(1): 197
 Kruzynski, G.M.: J 51(8): 1780
 Kwak, H.-S.: J 51(2): 280
- LaBar, G.W.: J 51(10): 2164
 Labelle, M.: J 51(3): 552
 Lacasse, S.: J 51(12): 2856
 Lacroix, G.L.: J 51(3): 662
 Lafaye, J.Y.: J 51(6): 1258
 Lagardère, J.P.: J 51(6): 1258
 Lambert, Y.: J 51(7): 1569
 Lammens, E.H.R.R.: J 51(3): 516
 Lamontagne, S.: J 51(6): 1376
 Landry, G.: DF 933F
 Landsburg, W.: IF 223
 Langford, G.: TF 1967
 Langille, P.: DH 127
 Lanteigne, M.: IF 223
 Larouche, P.: DH 119(1)F, DH 119(4)F, DH 132
 Larsen, D.A.: J 51(3): 567
 Larson, G.L.: J 51(Suppl. 1): 298
 Lasenby, D.C.: J 51(9): 1935, J 51(11): 2591
 Lauzier, P.: EC 127, EC 145
 Lavallée, J.: EC 130, EC 139
 Lavellée, J.: EC 127
 Lavigneur, L.: MF 2220F
 Lawrence, M.J.: DF 922
 Lawrence, M.J.: DF 912, DF 923, DF 924
 Lazorchak, J.M.: J 51(11): 2435
 Leach, J.H.: J 51(4): 856
 Leavitt, P.R.: J 51(10): 2286, J 51(10): 2312, J 51(10): 2322,
 J 51(11): 2411
 LeBlanc, C.: DF 933F
 Leblanc, F.: DF 919
 LeBlond, P.H.: J 51(2): 441
 Lebo, M.E.: J 51(4): 862
 LeClair, L.L.: J 51(Suppl. 1): 65
 Lefaiivre, D.: J 51(1): 123
 Legendre, P.: J 51(12): 2856
 Leggett, W.C.: J 51(5): 1128
 Leigh, G.M.: J 51(8): 1689
 Leung, F.C.: J 51(Suppl. 1): 258
 Levasseur, M.: J 51(4): 881
 Lévesque, C.: IF 220F
 Lévesque, P.: MF 2258, MF 2258F
 Li, H.W.: J 51(Suppl. 1): 170
 Libal, J.J.: J 51(6): 1410
 Lin, P.: J 51(2): 253
- Liss, W.J.: J 51(Suppl. 1): 298
 Lively, R.: DH 128
 Lively, R.R.: DH 131
 Livingstone, D.M.: J 51(9): 1908
 Lo, C.F.: J 51(1): 1
 Locke, A.: DF 919, DF 937, J 51(1): 151
 Loftus, K.K.: MF 2216
 Lorrain, S.: J 51(5): 1088
 Losier, R.: TF 1959
 Losier, R.J.: TF 1958
 Ludwig, D.: J 51(3): 713
 Ludyanskiy, M.L.: J 51(7): 1474
 Lum, K.: J 51(5): 1088
 Lundahl, P.: TF 1989
 Lundy, M.J.: MF 2230
- Maagne, A.: J 51(2): 315
 MacDonald, G.: DF 930
 MacDonald, J.K.: EC 119
 Macdonald, R.W.: DH 129
 Mace, P.M.: J 51(1): 110
 Mackie, G.L.: J 51(5): 1147
 MacNair, N.: J 51(8): 1728
 Madenjian, C.P.: J 51(4): 800
 Magnan, P.: J 51(12): 2856
 Malinoski, C.: J 51(9): 2017
 Mallet, A.: J 51(9): 2105
 Mallet, P.: IF 223
 Manley, S.A.: J 51(Suppl. 1): 196
 Mapstone, G.M.: TF 1939
 Marcogliese, D.J.: MF 2260
 Marmorek, D.R.: J 51(3): 662
 Marsden, J.E.: J 51(7): 1485
 Marshall, C.T.: J 51(4): 808
 Marshall, K.E.: TF 1950, TF 1970
 Marshall, T.R.: J 51(11): 2513
 Martel, A.: J 51(4): 856
 Martel, L.: TF 1989
 Martin, A.R.: J 51(7): 1653
 Martin, W.R.: J 51(5): 1214
 Martin-Robichaud, D.J.: TF 2013
 Martynov, V.: TF 2000
 Marzolf, E.R.: J 51(7): 1591
 Mathias, J.A.: J 51(9): 2077
 Mathieu, A.: TF 1947
 Mathieu, A.F.: J 51(4): 856
 May, B.: J 51(7): 1485
 Mazumder, A.: J 51(2): 390, J 51(2): 401
 McAllister, M.K.: J 51(12): 2673
 McCallum, B.: TF 1983
 McClelland, G.: MF 2260
 McDaniels, T.L.: J 51(9): 2115
 McDonald, D.G.: J 51(8): 1791, J 51(8): 1799, J 51(11): 2482
 McDowell, J.R.: J 51(8): 1762

AUTHOR INDEX/INDEX PAR AUTEUR

- McFarlane, G.A.: J 51(2): 460, TF 1939
 McGarvey, R.: J 51(4): 900
 McGladdery, S.E.: TF 1931
 McGregor, A.J.: J 51(Suppl. 1): 223
 McIvor, C.C.: J 51(12): 2873
 McKeown, B.A.: J 51(9): 1967
 McKinnell, S.: TF 1968
 McLaughlin, A.: TF 1936
 McLaughlin, F.A.: DH 129
 McLaughlin, R.L.: J 51(2): 268
 McLeod, R.: J 51(2): 464
 McQueen, D.J.: J 51(11): 2501
 McRae, S.M.: DF 924
 Measures, L.N.: J 51(4): 959
 Megrey, B.A.: J 51(12): 2640, J 51(12): 2695
 Meisner, J.D.: MF 2216, MF 2234
 Meister, J.-P.: MF 2226, MF 2226F
 Mellina, E.: J 51(5): 1024
 Melling, H.: TH 151
 Melvin, W.: TF 1947
 Merritt, R.W.: J 51(6): 1451
 Mertz, G.: TF 1966
 Methven, D.A.: J 51(1): 78
 Metikosh, S.: MF 2235
 Michaud, M.: TF 1989
 Midanaya, V.V.: J 51(Suppl. 1): 145
 Mierle, G.: J 51(5): 1147
 Millard, E.S.: J 51(11): 2579
 Miller, G.D.: J 51(Suppl. 1): 42
 Miller, L.M.: J 51(4): 774
 Milligan, T.G.: TH 156
 Miloslavich, P.: J 51(12): 2866
 Min, B.H.: J 51(Suppl. 1): 38
 Minns, C.K.: J 51(8): 1804, MF 2209, TF 1936, TF 1941, TF 1987
 Miskimmin, B.M.: J 51(4): 923
 Mitton, C.J.A.: J 51(8): 1791, J 51(8): 1799
 Moles, A.: J 51(4): 974
 Moltschaniwskyj, N.A.: J 51(4): 830
 Monosson, E.: J 51(4): 933
 Mooij, W.M.: J 51(3): 516
 Moon, T.W.: J 51(3): 567
 Moore, D.S.: IF 222
 Moore, J.E.: J 51(8): 1804, TF 1941
 Moore, J.W.: TF 1942
 Morán, P.: J 51(2): 248
 Morin, A.: J 51(7): 1615
 Morin, P.-P.: J 51(9): 1985
 Moriyasu, M.: TF 1984
 Morris, J.F.T.: TF 1932
 Mossman, D.: J 51(6): 1368
 Mulholland, P.J.: J 51(7): 1591
 Mullen, A.J.: J 51(9): 2027
 Munawar, M.: J 51(11): 2568
 Munkittrick, K.R.: TF 1929
 Munro, J.: IF 224, J 51(7): 1569, J 51(11): 2448
 Muotka, T.: J 51(10): 2210
 Murkin, H.R.: J 51(3): 681
 Murphy, K.M.: TF 1993
 Myers, D.L.: J 51(1): 68
 Myers, R.A.: DH 125, J 51(9): 2126, TF 1966
 Naiman, R.J.: J 51(1): 37
 Nalepa, T.F.: J 51(10): 2227, J 51(10): 2234
 Narayanan, S.: TH 157
 Nass, K.E.: J 51(8): 1899
 Navarro, N.: DF 894F
 Nealson, K.H.: J 51(1): 185
 Nelson, T.C.: MF 2249, MF 2251, MF 2255
 Nepszy, S.J.: J 51(4): 856, J 51(5): 986
 Neville, C.-E.M.: J 51(12): 2843
 Newbold, J.D.: J 51(2): 295
 Nielsen, G.A.: TF 1952
 Nielsen, J.L.: J 51(Suppl. 1): 290
 Nielsen, R.L.: J 51(1): 68
 Niimi, A.J.: TF 1993
 Norberg, B.: J 51(8): 1700
 Norton, S.A.: J 51(8): 1855
 O'Boyle, R.N.: MF 2252, TF 1979
 O'Brien, M.: DH 129
 Ogle, D.H.: J 51(8): 1721
 Ogura, M.: J 51(3): 501
 Olito, C.A.: J 51(Suppl. 1): 31
 Ollrik, K.: J 51(8): 1692
 Ontario Ministry of Natural Resources: MF 2236
 Orr, U.: TH 154
 Otterå, H.: J 51(5): 1012
 Ouellet, P.: J 51(1): 123, TF 2019F
 Ozburn, G.W.: J 51(9): 2090
 Pace, M.L.: J 51(1): 25, J 51(9): 2034
 Padilla, D.K.: J 51(5): 1189
 Page, F.: TF 1959
 Page, F.H.: TF 1958
 Pagé, L.: IF 221, IF 221F
 Paisley, R.K.: J 51(9): 2115
 Paloheimo, J.E.: J 51(6): 1420
 Panfili, J.: J 51(3): 506
 Park, E.-H.: J 51(2): 280
 Parks, J.W.: J 51(9): 2090
 Parma, A.M.: J 51(7): 1506
 Parsons, G.J.: TF 2012
 Patalas, J.: TF 1954
 Patalas, K.: TF 1954
 Paton, D.W.: DH 129
 Paul, A.J.: J 51(11): 2411, J 51(11): 2520
 Paulsen, O.L.: J 51(Suppl. 1): 233, J 51(5): 1012
 Payne, J.F.: TF 1947
 Peacock, F.G.: TF 1979
 Pearson, R.: DH 129
 Peckarsky, B.L.: J 51(2): 450

- Pelletier, D.: J 51(7): 1506
 Pelletier, E.: J 51(2): 464
 Pendás, A.M.: J 51(2): 248
 Penttinen, A.: J 51(10): 2210
 Pernie, G.L.: J 51(11): 2570
 Perrin, C.J.: J 51(5): 1037
 Perry, E.A.: MF 2118
 Perry, K.L.: TF 1969
 Perry, R.I., J 51(3): 589, J 51(6): 1401
 Peterman, R.M.: J 51(3): 603
 Peters, R.H.: J 51(5): 1055
 Petersen, J.H., J 51(1): 8, J 51(5): 1197
 Peterson, I.K.: TH 153
 Peterson, R.E.: J 51(6): 1410
 Peterson, R.H.: TF 2013
 Petrie, B.: TH 152
 Pettipas, R.G.: DH 125
 Phelps, S.R.: J 51(Suppl. 1): 65
 Phillips, R.B.: J 51(Suppl. 1): 196
 Pierce, C.L.: J 51(5): 1128
 Pihl, L.: J 51(2): 321
 Pike, D.G.: TF 1924
 Pikitch, E.K.: J 51(12): 2673
 Pillar, S.C.: J 51(1): 99
 Pinel-Alloul, B.: J 51(9): 2003
 Pinfold, T.A.: MF 2216
 Pinkerton, E.W.: J 51(10): 2363
 Pitblado, J.R.: J 51(1): 151
 Planas, D.: J 51(1): 52
 Plisetskaya, E.M.: J 51(3): 567
 Poe, T.P.: J 51(5): 1197
 Poister, D.: J 51(11): 2457
 Pollard, S.M.: J 51(6): 1322
 Poole, G.C.: J 51(1): 37
 Portt, C.B.: MF 2209
 Post, J.R.: J 51(11): 2501
 Powell, M.D.: J 51(8): 1728
 Pringle, C.M.: J 51(6): 1443
 Prinsenberg, S.J.: TH 153
 Prouse, N.J., TF 1960, TF 1981
 Provencher, L.: IF 224
 Punt, A.: J 51(4): 946
 Punt, A.E.: J 51(12): 2673
 Putivkin, S.V.: J 51(Suppl. 1): 84
 Quinn, T.P.: J 51(Suppl. 1): 145
 Qusenberry, R.D.: J 51(Suppl. 1): 258
 Ralph, S.C.: J 51(1): 37
 Ramamoorthy, S.: TF 1942
 Ramsey, D.J.: TF 1910
 Rand, P.S.: J 51(4): 800
 Randall, D.J., J 51(10): 2170, J 51(10): 2179, J 51(10): 2188
 Randall, R.G., J 51(8): 1804, TF 1936, TF 1941
 Rankin, M.G.: J 51(2): 372
 Rasmussen, J.B., J 51(2): 381, J 51(5): 1024, J 51(5): 1128, J 51(11): 2388
 Ratynski, R.A.: TF 1910
 Reddin, D.G.: J 51(1): 91
 Regehr, G.W., J 51(10): 2254, J 51(12): 2756, J 51(12): 2794
 Reid, R.A.: J 51(5): 1147
 Restrepo, V.R.: J 51(12): 2715
 Reuter, J.E.: J 51(4): 862
 Reynolds, J.B.: J 51(10): 2154
 Rhodes, C.L.: J 51(4): 862
 Rice, S.D.: J 51(4): 974
 Richard, P.R.: TF 1940
 Richards, L.J., J 51(2): 357, J 51(12): 2640
 Richardson, J.S.: J 51(5): 1037
 Richardson, L.R.: J 51(Suppl. 1): 203
 Riddell, B.E.: J 51(Suppl. 1): 114
 Riddoch, B.J.: J 51(7): 1490
 Riebel, P.: TF 1989
 Riedel, D.A.: TH 151
 Rieman, B.E.: J 51(1): 68
 Riley, S.C.: J 51(11): 2626
 Ritter, J.A.: J 51(3): 662
 Robarts, R.D.: J 51(10): 2219
 Robertson, D.M.: IF 222
 Robichaud, G., IF 223, TF 1992
 Robichaud, L.: TF 1956
 Robinson, C.L.K.: J 51(8): 1737
 Robinson, D.C.E.: J 51(3): 662
 Robinson, G.G.C., J 51(12): 2769, J 51(12): 2784
 Robinson, S.: MF 2247
 Rodríguez, M.A.: J 51(12): 2856
 Rognerud, S.: J 51(8): 1708
 Rondorf, D.W.: J 51(4): 836
 Rood, K.M.: MF 2238
 Rose, C.: J 51(6): 1281
 Rosenberg, A.A.: J 51(12): 2715
 Rosenberg, D.M., J 51(10): 2243, J 51(12): 2721
 Rosenberg, G.: J 51(7): 1474
 Rowan, D.J., J 51(8): 1769, J 51(11): 2388
 Roy, Y.: TF 1989
 Rudd, J.W.M.: J 51(5): 1065
 Rudi, M.J.: MF 2243
 Rudstam, L.G., J 51(11): 2591, J 51(12): 2825
 Russell, C.D.: J 51(Suppl. 1): 50
 Rutherford, D.T., J 51(Suppl. 1): 114, J 51(2): 248
 Rutherford, K.L.: TF 1925
 Ryan, P.A.: J 51(11): 2513
 Sadovy, Y.: J 51(1): 133
 Saether, O.A.: MF 2223
 Sager, P.E.: J 51(11): 2579
 Salki, A.: TF 1954
 Sampson, D.B., J 51(11): 2537, J 51(12): 2688

AUTHOR INDEX/INDEX PAR AUTEUR

- Sandström, O.: J 51(10): 2195
 Saucier, F.: DH 132
 Saunders, M.W.: TF 1939
 Savard, L., MF 2257F, TF 1900
 Savenkoff, C.: TF 2006
 Savoie, F.: IF 225
 Sayer, R.: TF 1987
 Scarratt, D.J.: TF 1969
 Schell, D.M.: J 51(6): 1338
 Schelske, C.L.: J 51(9): 2147
 Schindler, D.E.: J 51(11): 2411
 Schindler, D.W., J 51(4): 923, J 51(6): 1376, J 51(11): 2411, J 51(11): 2520
 Schindler, E.U., J 51(12): 2734, J 51(12): 2784, J 51(12): 2794
 Schloesser, D.W.: J 51(10): 2234
 Schnute, J.T., J 51(2): 357, J 51(8): 1676
 Schofield, C.L.: J 51(4): 792
 Schreck, C.B.: J 51(Suppl. 1): 170
 Schubert, N.D., MF 2200, MF 2208, MF 2241, MF 2242
 Schweigert, J.F.: TF 1971
 Scrivener, J.C.: J 51(5): 1139
 Seeb, J.E., J 51(Suppl. 1): 31, J 51(Suppl. 1): 42, J 51(Suppl. 1): 180
 Seeb, L.W.: J 51(Suppl. 1): 180
 Seelye, J.G.: J 51(9): 2045
 Seim, W.K.: J 51(6): 1345
 Semchenko, A.Yu.: J 51(1): 197
 Senciall, D.R.: TH 150
 Sephton, T.W.: TF 1945
 Serbic, G.: MF 2240
 Servos, M.R.: TF 1929
 Severin, K.P.: J 51(1): 133
 Sévigny, J.-M.: MF 2270F
 Shackell, N.L.: J 51(3): 642
 Shaklee, J.B.: J 51(Suppl. 1): 156
 Shardlow, T.F., TF 1973, TF 1974
 Sharma, S.K.: J 51(3): 545
 Sharpe, W.E.: J 51(7): 1620
 Sharr, S.: J 51(Suppl. 1): 42
 Shaw, W.: TF 1976
 Shearer, J.A., J 51(12): 2734, J 51(12): 2794
 Sheasgreen, J.: TF 1982
 Shelton, P.A.: J 51(3): 642
 Shen, X.-Z.: J 51(Suppl. 1): 258
 Shirvell, C.S.: J 51(7): 1644
 Shoemaker, K.E.: J 51(5): 1205
 Shortt, T.A.: MF 2224
 Showell, M., DF 947, DF 947F
 Shrimpton, J.M., J 51(10): 2170, J 51(10): 2179
 Shroyer, S.M.: J 51(8): 1721
 Sibert, J.R.: J 51(5): 1212
 Siddall, M.E.: J 51(4): 959
 Sieberg, D.: DH 129
 Silverstein, J.T.: J 51(4): 981
 Simard, Y.: TF 1900
 Simon, J.E.: TF 1953
 Simpson, J.J.: J 51(3): 743
 Sinclair, A., TF 1946, TF 1946F
 Sinclair, A.F.: J 51(5): 1046
 Sinclair, M.: TF 1979
 Singh, J.: J 51(6): 1368
 Singh, J.G.: J 51(4): 845
 Skalski, J.R.: J 51(3): 734
 Skirin, V.I.: J 51(1): 197
 Smith, B.D.: TF 1973
 Smith, S.: TF 1959
 Smith, S.J., J 51(3): 589, TF 1958
 Smith, T.G.: J 51(7): 1653
 Smoker, W.W., J 51(Suppl. 1): 1, J 51(Suppl. 1): 9, J 51(Suppl. 1): 25
 Smol, J.P., J 51(7): 1550, J 51(10): 2300, J 51(10): 2322
 Smolenski, A.J.: J 51(5): 1101
 Smouse, P.E.: J 51(2): 417
 Solar, I.L., TF 1901, TF 1955
 Somers, K.M.: J 51(3): 701
 Soranno, P.: J 51(12): 2825
 Soule, M.A.: J 51(1): 99
 Sower, S.A.: J 51(9): 2045
 Spangler, G.R.: J 51(8): 1721
 Speare, D.J.: J 51(8): 1728
 Spearman, W.J., J 51(Suppl. 1): 84, J 51(Suppl. 1): 170
 Spencer, P.D.: J 51(12): 2665
 Spidle, A.P.: J 51(7): 1485
 Spruell, P.: J 51(Suppl. 1): 252
 Sprules, W.G., DF 937, J 51(1): 151, J 51(11): 2568, J 51(11): 2603
 St-Pierre, J.-F.: TF 2019F
 St. John, M.: J 51(12): 2843
 St. Louis, V.L.: J 51(5): 1065
 Stahl, T.P.: J 51(9): 1993
 Stainton, M.: J 51(9): 2052
 Stainton, M.P.: J 51(10): 2254
 Stead, P.: DH 124
 Stegeman, J.J., J 51(4): 933, J 51(7): 1577
 Stein, R.A., J 51(4): 913, J 51(9): 1993
 Steingraeber, M.T.: J 51(6): 1356
 Steinman, A.D.: J 51(7): 1591
 Steinnes, E.: J 51(8): 1708
 Stekoll, M.S.: J 51(Suppl. 1): 9
 Stemberger, R.S.: J 51(11): 2435
 Stephenson, M., J 51(5): 1147, J 51(9): 1951
 Stephenson, M.F.: TF 1931
 Stevens, B.G.: J 51(6): 1273
 Stevens, T.A.: J 51(Suppl. 1): 267
 Stewart, B.E.: TF 1940
 Stewart, C.: TH 155
 Stewart, D.B., MF 2262, TF 1910
 Stewart, P.L.: J 51(5): 1162
 Stewart, R.E.A., J 51(2): 426, TF 1940
 Stobo, W.T.: TF 1943
 Stocker, M., J 51(6): 1401, J 51(8): 1823, TF 1975
 Stoermer, E.F.: J 51(9): 2147

- Stow, C.A.: J 51(6): 1384
 Strange, N.E.: DF 921
 Strong, M.: TF 1983
 Stucchi, D.J.: TH 154
 Subba Rao, D.V.: DF 937
 Sun, F.: J 51(Suppl. 1): 203
 Sutton, T.M.: J 51(11): 2380
 Suzuki, A.: J 51(6): 1265
 Svåsand, T.: J 51(5): 1012
 Swain, D.: TF 1983
 Swain, D.P.: J 51(5): 1046
 Sweeney, B.W.: J 51(2): 295
 Sweeting, R.M.: J 51(9): 1967
 Sweets, P.R.: J 51(8): 1855
- Taggart, C.T.: J 51(12): 2834
 Takayama-Abe, K.: J 51(6): 1265
 Tallman, R.F.: J 51(3): 577
 Tamai, Y.: J 51(6): 1265
 Tang, C.L.: DH 128
 Tardioli, L.: TF 1987
 Taylor, E.B.: J 51(6): 1430
 Taylor, W.D.: J 51(6): 1330
 Taylor, W.W.: J 51(6): 1451
 Teplitz, R.L.: J 51(Suppl. 1): 38
 Thellen, C.: TF 1989
 Thomas, G.: MF 2166
 Thomas, R.E.: J 51(4): 974
 Thomas, W.K.: J 51(Suppl. 1): 290
 Thompson, G.G.: J 51(12): 2654
 Thompson, J.A.J.: TH 155
 Thomson, B.L.: J 51(12): 2843
 Thomson, K.A.: J 51(2): 441
 Thorgaard, G.H.: J 51(Suppl. 1): 16, J 51(Suppl. 1): 252
 Thorp, J.H.: J 51(1): 179, J 51(7): 1634
 Tikkanen, C.A.: J 51(6): 1281
 Tilson, M.E.: J 51(4): 836
 Titman, R.D.: J 51(3): 681
 Toline, C.A.: J 51(6): 1218
 Tranvik, L.J.: J 51(11): 2529
 Tremblay, A.: J 51(2): 381
 Tremblay, E.: DF 919
 Tremblay, M.J.: TF 2021
 Trew, D.O.: J 51(9): 2052
 Trudel, M.: J 51(11): 2558
 Tsai, H.J.: J 51(1): 1
 Tsiger, V.V.: J 51(1): 197
 Tuele, D.: DH 129
 Tuljapurkar, S.: J 51(7): 1462
 Turner, M.A.: J 51(12): 2784
- Urawa, S.: J 51(Suppl. 1): 95
 Uthe, J.F.: TF 1981
- Väinölä, R.: J 51(7): 1490
 van Coillie, R.: TF 1989
 van den Heuvel, M.R.: J 51(7): 1577
 Van Densen, W.L.T.: J 51(3): 516
 Van Der Kraak, G.: J 51(2): 337
 Van Offelen, H.K.: J 51(4): 792
 Vandermeulen, J.H.: J 51(4): 845, J 51(6): 1368
 Varnavskaya, N.V.: J 51(Suppl. 1): 84, J 51(Suppl. 1): 95,
 J 51(Suppl. 1): 132, J 51(Suppl. 1): 145, J 51(Suppl. 1): 156
 Varnavsky, V.S.: J 51(Suppl. 1): 145
 Ventling-Schwank, A.R.: J 51(9): 1908
 Verge, E.: DH 127
 Verreault, G.: J 51(2): 479
 Vézina, A.: J 51(5): 1055
 Vézina, A.F.: DF 894F, J 51(9): 2034, TF 2006
 Vienneau, R.: TF 1984
 Vignier, V.: J 51(6): 1368
 Villotte, J.P.: J 51(6): 1258
 Vincent, P.: EC 127, EC 143
 Vincent, W.F.: J 51(1): 161
- Wachter, K.W.: J 51(7): 1462
 Waddell, B.J.: TF 1968
 Wagemann, R.: J 51(2): 426, J 51(9): 1951, TF 1991
 Wagner, E.J.: J 51(3): 636
 Waiser, M.J.: J 51(10): 2219
 Walker, M.K.: J 51(6): 1410
 Walsh, S.J.: TF 1983
 Walter, J.A.: J 51(9): 2105
 Walters, C.: J 51(3): 713, J 51(4): 946, J 51(12): 2705
 Walton, W.E.: J 51(9): 2017
 Wang, Y.-G.: J 51(5): 1212
 Waples, R.S.: J 51(Suppl. 1): 310
 Ward, R.: J 51(Suppl. 1): 215
 Ward, R.D.: J 51(5): 1101, J 51(7): 1490
 Ware, D.M.: J 51(2): 460, J 51(8): 1737
 Warren, W.G.: J 51(2): 408, J 51(8): 1823
 Wastle, R.J.: TF 1951
 Watkins, R.F.: J 51(Suppl. 1): 267
 Watt, W.D.: J 51(3): 662
 Webb, T.M.: MF 2234
 Wehr, J.D.: J 51(7): 1634
 Weiher, E.R.: J 51(1): 20
 Welt, M.: J 51(Suppl. 1): 258
 Wen, Y.H.: J 51(5): 1055
 West, I.F.: J 51(10): 2333
 Whalen, K.G.: J 51(10): 2164
 Wheeler, J.P.: J 51(5): 1169
 Whittle, D.M.: J 51(3): 693
 Whoriskey, F.: TF 2000
 Wiener, J.G.: J 51(6): 1356
 Wildish, D.J.: MF 2243
 Wilkinson, P.: J 51(10): 2274, J 51(12): 2756

AUTHOR INDEX/INDEX PAR AUTEUR

- Williams, I.V.: TF 1967
Wilmot, R.L., J 51(Suppl. 1): 84, J 51(Suppl. 1): 145
Wilson, R.C.H.: TF 1948
Wilson, R.W., J 51(3): 527, J 51(3): 536
Wilson, W.J.: J 51(4): 890
Winans, G.A.: J 51(Suppl. 1): 95
Winters, G.H.: J 51(5): 1169
Wipfli, M.S.: J 51(6): 1451
Withler, R.E., J 51(Suppl. 1): 114, J 51(Suppl. 1): 267
Wolfe, B.: J 51(10): 2274
Wolfe, C.E.: J 51(10): 2322
Wood, C.C., J 51(Suppl. 1): 114, J 51(Suppl. 1): 132,
J 51(Suppl. 1): 145, J 51(8): 1839
Wood, C.M., J 51(3): 527, J 51(3): 536
Woollard, A.L., DH 126, DH 133
Wright, J.M.: J 51(9): 1959
Wright, T.L.: DH 125
Wroblewski, J.S., J 51(1): 142, J 51(12): 2834
Xi, K.: J 51(3): 545
Xiao, Y., J 51(2): 263, J 51(7): 1585
Ximénès, M.-C.: J 51(3): 506
Xu, S.: J 51(2): 417
Yang, C.Z.: J 51(11): 2493
Yang, X.: J 51(6): 1391
Young, M.K.: J 51(11): 2626
Young, P.S., J 51(7): 1519, J 51(7): 1528
Young, S.: J 51(Suppl. 1): 65
Youson, J.H.: J 51(9): 2045
Zeeb, B.A., J 51(10): 2300, J 51(10): 2322
Zhivotovsky, L.A.: J 51(Suppl. 1): 223
Zia, S.: J 51(11): 2482
Zimmerman, E.G.: J 51(Suppl. 1): 215
Zwanenburg, K.C.T., MF 2252, TF 1979

CANADIAN JOURNAL OF FISHERIES AND AQUATIC SCIENCES
JOURNAL

CANADIEN DES SCIENCES HALIEUTIQUES ET AQUATIQUES

Abbreviation/Abreviation: J

Volume 51 (1994)

No. 1, January/n° 1, janvier

- Tsai, H.J., H.M. Chen, and C.F. Lo. Secretory synthesis of active recombinant fish growth hormone by insect cells using a baculovirus vector. 1-7.
- Cech, J.J. Jr., D.T. Castleberry, T.E. Hopkins, and J.H. Petersen. Northern squawfish, *Ptychocheilus oregonensis*, O₂ consumption rate and respiration model: effects of temperature and body size. 8-12.
- Cech, J.J. Jr., D.T. Castleberry, and T.E. Hopkins. Temperature and CO₂ effects on blood O₂ equilibria in northern squawfish, *Ptychocheilus oregonensis*. 13-19.
- Weiher, E.R., C.W. Boylen, and P.A. Bukaveckas. Alterations in aquatic plant community structure following liming of an acidic Adirondack lake. 20-24.
- Baines, S.B., and M.L. Pace. Relationships between suspended particulate matter and sinking flux along a trophic gradient and implications for the fate of planktonic primary production. 25-36.
- Ralph, S.C., G.C. Poole, L.L. Conquest, and R.J. Naiman. Stream channel morphology and woody debris in logged and unlogged basins of western Washington. 37-51.
- Junger, M., and D. Planas. Quantitative use of stable carbon isotope analysis to determine the trophic base of invertebrate communities in a boreal forest lotic system. 52-61.
- Kornfield, L., and F.W. Kircheis. Mitochondrial DNA and conservation of an aboriginal arctic char (*Salvelinus alpinus oquassa*) from Floods Pond, Maine. 62-67.
- Rieman, B.E., D.L. Myers, and R.L. Nielsen. Use of otolith microchemistry to discriminate *Oncorhynchus nerka* of resident and anadromous origin. 68-77.
- Methven, D.A., and C. Bajdik. Temporal variation in size and abundance of juvenile Atlantic cod (*Gadus morhua*) at an inshore site off eastern Newfoundland. 78-90.
- Friedland, K.D., and D.G. Reddin. Use of otolith morphology in stock discriminations of Atlantic salmon (*Salmo salar*). 91-98.
- Barange, M., I. Hampton, S.C. Pillar, and M.A. Soule. Determination of composition and vertical structure of fish communities using in situ measurements of acoustic target strength. 99-109.
- Mace, P.M. Relationships between common biological reference points used as thresholds and targets of fisheries management strategies. 110-122.
- Ouellet, P., and D. Lefavre. Vertical distribution of northern shrimp (*Pandalus borealis*) larvae in the Gulf of St. Lawrence; implications for trophic interactions and transport. 123-132.
- Sadovy, Y., and K.P. Severin. Elemental patterns in red hind (*Epinephelus guttatus*) otoliths from Bermuda and Puerto Rico reflect growth rate, not temperature. 133-141.
- Wroblewski, J.S., W.L. Bailey, and K.A. Howse. Observations of adult Atlantic cod (*Gadus morhua*) overwintering in nearshore waters of Trinity Bay, Newfoundland. 142-150.
- Locke, A., W.G. Sprules, W. Keller, and J.R. Pitblado. Zooplankton communities and water chemistry of Sudbury area lakes: changes related to pH recovery. 151-160.
- Bertrand, N., and W.F. Vincent. Structure and dynamics of photosynthetic picoplankton across the saltwater transition zone of the St. Lawrence River. 161-171.
- Fontaine, P.M., M.O. Hammill, C. Barrette, and M.C. Kingsley. Summer diet of the harbour porpoise (*Phocoena phocoena*) in the estuary and the northern Gulf of St. Lawrence. 172-178.
- Alexander, J.E. Jr., J.H. Thorp, and R.D. Fell. Turbidity and temperature effects on oxygen consumption in the zebra mussel (*Dreissena polymorpha*). 179-184.
- Aguilar, C., and K.H. Nealson. Manganese reduction in Oneida Lake, New York: estimates of spatial and temporal manganese flux. 185-196.
- Tsiger, V.V., V.I. Skirin, N.I. Krupyanko, K.A. Kashkin, and A. Yu. Semenchenko. Life history forms of male masu salmon (*Oncorhynchus masou*) in South Primor'e, Russia. 197-208.

Perspectives

- Johnson, L. Long-term experiments on the stability of two fish populations in previously unexploited Arctic lakes. 209-225.
- Johnson, L. Pattern and process in ecological systems: a step in the development of a general ecological theory. 226-246.

No. 2, February/n° 2, février

- Morán, P., A.M. Pendás, E. García-Vázquez, J.T. Izquierdo, and D.T. Rutherford. Electrophoretic assessment of the contribution of transplanted Scottish Atlantic salmon (*Salmo salar*) to the Esva River (Northern Spain). 248-252.
- Holmes, J.A., and P. Lin. Thermal niche of larval sea lamprey, *Petromyzon marinus*. 253-262.
- Xiao, Y. Growth models with corrections for the retardative effects of tagging. 263-267.
- McLaughlin, R.L., J.W.A. Grant, and D.L. Kramer. Foraging movements in relation to morphology, water-column use, and diet for recently emerged brook trout (*Salvelinus fontinalis*) in still-water pools. 268-279.
- Park, E.-H., H.-H. Chang, W.N. Joo, H.-S. Chung, and H.-S. Kwak. Assessment of the estuarine hermaphroditic fish

- Rivulus marmoratus* as a useful euryhaline species for acute toxicity tests as shown using cadmium. 280-285.
- Juinio, M.A.R., and J.S. Cobb. Estimation of recent growth of field-caught postlarval American lobsters, *Homarus americanus*, from RNA:DNA ratios. 286-294.
- Jackson, J.K., B.W. Sweeney, T.L. Bott, J.D. Newbold, and L.A. Kaplan. Transport of *Bacillus thuringiensis* var. *israelensis* and its effect on drift and benthic densities of nontarget macroinvertebrates in the Susquehanna River, northern Pennsylvania. 295-314.
- Goksøyr, A., M. Bjørnevik, and A. Maage. Effects of dietary iron concentrations on the cytochrome P450 system of Atlantic salmon (*Salmo salar*) 315-320.
- Pihl, L. Changes in the diet of demersal fish due to eutrophication-induced hypoxia in the Kattegat, Sweden. 321-336.
- Gagnon, M.M., J.J. Dodson, P.V. Hodson, G. Van Der Kraak, and J.H. Carey. Seasonal effects of bleached kraft mill effluent on reproductive parameters of white sucker (*Catostomus commersoni*) populations of the St. Maurice River, Quebec, Canada. 337-347.
- Kenchington, E.L., and W.E. Full. Fourier analysis of sea scallop (*Placopecten magellanicus*) shells in determining population structure. 348-356.
- Richards, L.J., J.T. Schnute, and J. Fargo. Application of a generalized logit model to condition data for trawl-caught Pacific halibut, *Hippoglossus stenolepis*. 357-364.
- Arthur, A.D., and D.G. Dixon. Effects of rearing density on the growth response of juvenile fathead minnow (*Pimephales promelas*) under toxicant-induced stress. 365-371.
- Rankin, M.G., and D.G. Dixon. Acute and chronic toxicity of waterborne arsenite to rainbow trout (*Oncorhynchus mykiss*). 372-380.
- Cabana, G., A. Tremblay, J. Kalff, and J.B. Rasmussen. Pelagic food chain structure in Ontario lakes: a determinant of mercury levels in lake trout (*Salvelinus namaycush*). 381-389.
- Mazumder, A. Phosphorus-chlorophyll relationships under contrasting herbivory and thermal stratification: predictions and patterns. 390-400.
- Mazumder, A. Phosphorus-chlorophyll relationships under contrasting zooplankton community structure: potential mechanisms. 401-407.
- Warren, W.G. Maturity and molt status of Crustacea: determining classification without prior criteria. 408-416.
- Xu, S., C.J. Kobak, and P.E. Smouse. Constrained least squares estimation of mixed population stock composition from mtDNA haplotype frequency data. 417-425.
- Wagemann, R., and R.E.A. Stewart. Concentrations of heavy metals and selenium in tissues and some foods of walrus (*Odobenus rosmarus rosmarus*) from the eastern Canadian Arctic and sub-Arctic, and associations between metals, age, and gender. 426-436.
- Heath, S., W.A. Bennett, J. Kennedy, and T.L. Beiting. Heat and cold tolerance of the fathead minnow, *Pimephales promelas*, exposed to the synthetic pyrethroid cyfluthrin. 437-440.
- Thomson, K.A., W.J. Ingraham Jr., M.C. Healey, P.H. LeBlond, C. Groot, and C.G. Healey. Computer simulations of the influence of ocean currents on Fraser River sockeye salmon (*Oncorhynchus nerka*) return times. 441-449.
- Cowan, C.A., and B.L. Peckarsky. Diel feeding and positioning periodicity of a grazing mayfly in a trout stream and a fishless stream. 450-459.
- Hargreaves, N.B., D.M. Ware, and G.A. McFarlane. Return of Pacific sardine (*Sardinops sagax*) to the British Columbia coast in 1992. 460-463.
- Hodson, P.V., M. Castonguay, C.M. Couillard, C. Desjardins, E. Pelletier, and R. McLeod. Spatial and temporal variations in chemical contamination of American eels, *Anguilla rostrata*, captured in the estuary of the St. Lawrence River. 464-478.
- Reviews/Synthèses
- Castonguay, M., P.V. Hodson, C.M. Couillard, M.J. Eckersley, J.-D. Dutil, and G. Verreault. Why is recruitment of the American eel, *Anguilla rostrata*, declining in the St. Lawrence River and Gulf? 479-488.
- No. 3, March/n° 3, mars
- Danylchuk, A.J., and M.G. Fox. Seasonal reproductive patterns of pumpkinseed (*Lepomis gibbosus*) populations with varying body size characteristics. 490-500.
- Ogura, M., and S. Ito. Change in the known ocean distribution of Japanese chum salmon, *Oncorhynchus keta*, in relation to the progress of stock enhancement. 501-505.
- Panfili, J., M.-C. Ximénès, and A.J. Crivelli. Sources of variation in growth of the European eel (*Anguilla anguilla*) estimated from otoliths. 506-515.
- Mooij, W.M., E.H.R.R. Lammens, and W.L.T. Van Densen. Growth rate of O+ fish in relation to temperature, body size, and food in shallow eutrophic Lake Tjeukemeer. 516-526.
- Wilson, R.W., H.L. Bergman, and C.M. Wood. Metabolic costs and physiological consequences of acclimation to aluminum in juvenile rainbow trout (*Oncorhynchus mykiss*). 1: Acclimation specificity, resting physiology, feeding, and growth. 527-535.
- Wilson, R.W., H.L. Bergman, and C.M. Wood. Metabolic costs and physiological consequences of acclimation to aluminum in juvenile rainbow trout (*Oncorhynchus mykiss*). 2: Gill morphology, swimming performance, and aerobic scope. 536-544.
- Gauldie, R.W., K. Xi, and S.K. Sharma. Developing a Raman spectral method for measuring the strontium and calcium concentrations of fish otoliths. 545-551.
- Labelle, M. A likelihood method for estimating Pacific salmon escapement based on fence counts and mark-recapture data. 552-566.
- Plisetskaya, E.M., T.W. Moon, D.A. Larsen, G.D. Foster, and W.W. Dickhoff. Liver glycogen, enzyme activities, and pancreatic hormones in juvenile Atlantic salmon (*Salmo salar*) during their first summer in seawater. 567-576.

- Tallman, R.F., and M.C. Healey. Homing, straying, and gene flow among seasonally separated populations of chum salmon (*Oncorhynchus keta*). 577-588.
- Perry, R.L., and S.J. Smith. Identifying habitat associations of marine fishes using survey data: an application to the northwest Atlantic. 589-602.
- Forbes, L.S., and R.M. Peterman. Simple size-structured models of recruitment and harvest in Pacific salmon (*Oncorhynchus* spp.). 603-616.
- de Lafontaine, Y. Zooplankton biomass in the southern Gulf of St. Lawrence: spatial patterns and the influence of freshwater runoff. 617-635.
- Bosakowski, T., and E.J. Wagner. Assessment of fin erosion by comparison of relative fin length in hatchery and wild trout in Utah. 636-641.
- Shackell, N.L., P.A. Shelton, J.M. Hoenig, and J.E. Carscadden. Age- and sex-specific survival of northern Grand Bank capelin (*Mallotus villosus*). 642-649.
- Brylinsky, M., J. Gibson, and D.C. Gordon Jr. Impacts of flounder trawls on the intertidal habitat and community of the Minas Basin, Bay of Fundy. 650-661.
- Korman, J., D.R. Marmorek, G.L. Lacroix, P.G. Amiro, J.A. Ritter, W.D. Watt, R.E. Cutting, and D.C.E. Robinson. Development and evaluation of a biological model to assess regional-scale effects of acidification on Atlantic salmon (*Salmo salar*). 662-680.
- Campeau, S., H.R. Murkin, and R.D. Titman. Relative importance of algae and emergent plant litter to freshwater marsh invertebrates. 681-692.
- Borgmann, U., and D.M. Whittle. Particle-size-conversion efficiency, invertebrate production, and potential fish production in Lake Ontario. 693-700.
- Hinch, S.G., K.M. Somers, and N.C. Collins. Spatial autocorrelation and assessment of habitat-abundance relationships in littoral zone fish. 701-712.
- Walters, C., and D. Ludwig. Calculation of Bayes posterior probability distributions for key population parameters. 713-722.
- Gascuel, D. Une méthode simple d'ajustement des clés taille/âge: application aux captures d'albacores (*Thunnus albacares*) de l'Atlantique Est. 723-733.
- Anganuzzi, A., R. Hilborn, and J.R. Skalski. Estimation of size selectivity and movement rates from mark-recovery data. 734-742.
- Perspectives**
- Simpson, J.J. Remote sensing in fisheries: a tool for better management in the utilization of a renewable resource. 743-771.
-
- No. 4, April/n° 4, avril
- Miller, L.M., and A.R. Kapuscinski. Estimation of selection differentials from fish scales: a step towards evaluating genetic alteration of fish size in exploited populations. 774-783.
- Benfield, M.C., and D.V. Aldrich. Avoidance of pentachlorophenol by postlarval brown shrimp (*Penaeus aztecus*) (Decapoda, Penaeidae) in a laminar-flow choice chamber. 784-791.
- Van Offelen, H.K., C.C. Krueger, C.L. Schofield, and C. Keleher. Survival, distribution, and ion composition in two strains of brook trout (*Salvelinus fontinalis*) fry after exposure to episodic pH depressions in an Adirondack lake. 792-799.
- Madenjian, C.P., S.R. Carpenter, and P.S. Rand. Why are the PCB concentrations of salmonine individuals from the same lake so highly variable? 800-807.
- Marshall, C.T., and K.T. Frank. Geographic responses of groundfish to variation in abundance: methods of detection and their interpretation. 808-816.
- Cordue, P.L., and R.I.C.C. Francis. Accuracy and choice in risk estimation for fisheries assessment. 817-829.
- Moltschanowskyj, N.A. Muscle tissue growth and muscle fibre dynamics in the tropical loliginid squid *Photololigo* sp. (Cephalopoda: Loliginidae). 830-835.
- Beeman, J.W., D.W. Rondorf, and M.E. Tilson. Assessing smoltification of juvenile spring chinook salmon (*Oncorhynchus tshawytscha*) using changes in body morphology. 836-844.
- Vandermeulen, J.H., and J.G. Singh. ARROW oil spill, 1970-90: persistence of 20-yr weathered Bunker C fuel oil. 845-855.
- Martel, A., A.F. Mathieu, C.S. Findlay, S.J. Nepszky, and J.H. Leach. Daily settlement rates of the zebra mussel, *Dreissena polymorpha*, on an artificial substrate correlate with veliger abundance. 856-861.
- Lebo, M.E., J.E. Reuter, C.R. Goldman, and C.L. Rhodes. Interannual variability of nitrogen limitation in a desert lake: influence of regional climate. 862-872.
- De Melo, R., and P.D.N. Hebert. Allozymic variation and species diversity in North American Bosminidae. 873-880.
- Levasseur, M., M.D. Keller, E. Bonneau, D. D'Amours, and W.K. Bellows. Oceanographic basis of a DMS-related Atlantic cod (*Gadus morhua*) fishery problem: blackberry feed. 881-889.
- Fechhelm, R.G., J.D. Bryan, W.B. Griffiths, W.J. Wilson, and B.J. Gallaway. Effect of coastal winds on the summer dispersal of young least cisco (*Coregonus sardinella*) from the Colville River to Prudhoe Bay, Alaska: a simulation model. 890-899.
- McGarvey, R. An age-structured open-access fishery model. 900-912.
- Bremigan, M.T., and R.A. Stein. Gape-dependent larval foraging and zooplankton size: implications for fish recruitment across systems. 913-922.
- Miskimmin, B.M., and D.W. Schindler. Long-term invertebrate community response to toxaphene treatment in two lakes: 50-yr records reconstructed from lake sediments. 923-932.
- Monosson, E., and J.J. Stegeman. Induced cytochrome P4501A in winter flounder, *Pleuronectes americanus*, from offshore and coastal sites. 933-941.
- Jensen, A.L. Larkin's predation model of lake trout (*Salvelinus namaycush*) extinction with harvesting and sea lamprey

- (*Petromyzon marinus*) predation: a qualitative analysis. 942-945.
- Walters, C., and A. Punt. Placing odds on sustainable catch using virtual population analysis and survey data. 946-958.
- Siddall, M.E., L.N. Measures, and S.S. Desser. Infection with the piroplasm *Haemohormidium terranova* in relation to haematocrit and mortality of American plaice (*Hippoglossoides platessoides*). 959-964.
- Bradford, M.J. Trends in the abundance of chinook salmon (*Oncorhynchus tshawytscha*) of the Nechako River, British Columbia. 965-973.
- Rice, S.D., R.E. Thomas, and A. Moles. Physiological and growth differences in three stocks of underyearling sockeye salmon (*Oncorhynchus nerka*) on early entry into seawater. 974-980.
- Letters and Comments/Lettres et commentaires
- Silverstein, J.T. Comment on "Genetic, environmental, and interaction effects on growth and stress response of chinook salmon (*Oncorhynchus tshawytscha*) fry" by Heath et al. (1993). 981.
- Heath, D.D., N.J. Bernier, J.W. Heath, and G.K. Iwama. Reply to comment on "Genetic, environmental, and interaction effects on growth and stress response of chinook salmon (*Oncorhynchus tshawytscha*) fry" by Silverstein. 981-983.
- Obituary/Nécrologie
- Dodson, J., and H. Guderley. Gerard J. FitzGerald, 1949-1994. 984.
-
- No. 5, May/n° 5, mai
- Henderson, B.A., and S.J. Nepszy. Reproductive tactics of walleye (*Stizostedion vitreum*) in Lake Erie. 986-997.
- Gribble, N., and M. Dredge. Mixed-species yield-per-recruit simulations of the effect of seasonal closure on a central Queensland coast prawn trawling ground. 998-1011.
- Blom, G., T. Svåsand, K.E. Jørstad, H. Otterå, O.I. Paulsen, and J.C. Holm. Comparative survival and growth of two strains of Atlantic cod (*Gadus morhua*) through the early life stages in a marine pond. 1012-1023.
- Mellina, E., and J.B. Rasmussen. Patterns in the distribution and abundance of zebra mussel (*Dreissena polymorpha*) in rivers and lakes in relation to substrate and other physicochemical factors. 1024-1036.
- Richardson, J.S., and C.J. Perrin. Effects of the bacterial insecticide *Bacillus thuringiensis* var. *kurstaki* (Btk) on a stream benthic community. 1037-1045.
- Swain, D.P., and A.F. Sinclair. Fish distribution and catchability: what is the appropriate measure of distribution? 1046-1054.
- Wen, Y.H., A. Vézina, and R.H. Peters. Phosphorus fluxes in limnetic cladocerans: coupling of allometry and compartmental analysis. 1055-1064.
- St. Louis, V.L., J.W.M. Rudd, C.A. Kelly, K.G. Beaty, N.S. Bloom, and R.J. Flett. Importance of wetlands as sources of methyl mercury to boreal forest ecosystems. 1065-1076.
- Fore, L.S., J.R. Karr, and L.L. Conquest. Statistical properties of an index of biological integrity used to evaluate water resources. 1077-1087.
- Carignan, R., S. Lorrain, and K. Lum. A 50-yr record of pollution by nutrients, trace metals, and organic chemicals in the St. Lawrence River. 1088-1100.
- Grewe, P.M., A.J. Smolenski, and R.D. Ward. Mitochondrial DNA diversity in jackass morwong (*Nemadactylus macropterus*: Teleostei) from Australian and New Zealand waters. 1101-1109.
- Claxton, W.T., C.K. Govind, and R.W. Elnor. Chela function, morphometric maturity, and the mating embrace in male snow crab, *Chionoecetes opilio*. 1110-1118.
- Krohn, M.M., and D. Boisclair. Use of a stereo-video system to estimate the energy expenditure of free-swimming fish. 1119-1127.
- Pierce, C.L., J.B. Rasmussen, and W.C. Leggett. Littoral fish communities in southern Quebec lakes: relationships with limnological and prey resource variables. 1128-1138.
- Scrivener, J.C., T.G. Brown, and B.C. Andersen. Juvenile chinook salmon (*Oncorhynchus tshawytscha*) utilization of Hawks Creek, a small and nonnatal tributary of the upper Fraser River. 1139-1146.
- Stephenson, M., G. Mierle, R.A. Reid, and G.L. Mackie. Effects of experimental and cultural lake acidification on littoral benthic macroinvertebrate assemblages. 1147-1161.
- Hutcheson, M.S., and P.L. Stewart. A possible relict population of *Mesodesma deauratum* (Turton): Bivalvia (Mesodesmatidae) from the Southeast Shoal, Grand Banks of Newfoundland. 1162-1168.
- Winters, G.H., and J.P. Wheeler. Length-specific weight as a measure of growth success of adult Atlantic herring (*Clupea harengus*). 1169-1179.
- Hanson, M.A., and M.G. Butler. Responses of plankton, turbidity, and macrophytes to biomanipulation in a shallow prairie lake. 1180-1188.
- Koutnik, M.A., and D.K. Padilla. Predicting the spatial distribution of *Dreissena polymorpha* (zebra mussel) among inland lakes of Wisconsin: modeling with a GIS. 1189-1198.
- Petersen, J.H., D.M. Gadomski, and T.P. Poe. Differential predation by northern squawfish (*Ptychocheilus oregonensis*) on live and dead juvenile salmonids in the Bonneville Dam tailrace (Columbia River). 1197-1204.
- Kleinow, K.M., H.H. Jarboe, K.E. Shoemaker, and K.J. Greenless. Comparative pharmacokinetics and bioavailability of oxolinic acid in channel catfish (*Ictalurus punctatus*) and rainbow trout (*Oncorhynchus mykiss*). 1205-1211.
- Letters and comments/Lettres et commentaires
- Wang, Y.G. MULTIFAN: estimation of growth parameters. 1212.
- Fournier, D.A., and J.R. Sibert. Response to Wang. 1212-1213.
- Obituary/Nécrologie
- Martin, W.R. William Mernery Sprules, 1916-1994. 1214-1215.

No. 6, June/n° 6, juin

- Toline, C.A., and A.J. Baker. Genetic differentiation among populations of the northern redbelly dace (*Phoxinus eos*) in Ontario. 1218-1228.
- Kristoffersen, K., M. Halvorsen, and L. Jørgensen. Influence of parr growth, lake morphology, and freshwater parasites on the degree of anadromy in different populations of Arctic char (*Salvelinus alpinus*) in northern Norway. 1229-1246.
- Attwood, C.G., and B.A. Bennett. Variation in dispersal of galjoen (*Coracinus capensis*) (Teleostei: Coracinidae) from a marine reserve. 1247-1257.
- Lagardère, J.P., M.L. Bégout, J.Y. Lafaye, and J.P. Villotte. Influence of wind-produced noise on orientation in the sole (*Solea solea*). 1258-1264.
- Tamai, Y., H. Kojima, K. Takayama-Abe, and A. Suzuki. Lipids and myelin proteins in the brains of coelacanth (*Latimeria chalumnae*), lungfish (*Lepidosiren paradoxa* and *Protopterus aetiopicus*), bichir (*Polypterus senegalus*), and sturgeon (*Acipenser ruthenus*) (Osteichthyes): phylogenetic implications. 1265-1272.
- Stevens, B.G., J.A. Haaga, and W.E. Donaldson. Aggregative mating of Tanner crabs, *Chionoecetes bairdi*. 1273-1280.
- Axler, R.P., C. Rose, and C.A. Tikkanen. Phytoplankton nutrient deficiency as related to atmospheric nitrogen deposition in northern Minnesota acid-sensitive lakes. 1281-1296.
- deYoung, B., J. Anderson, R.J. Greatbatch, and P. Fardy. Advection-diffusion modelling of larval capelin (*Mallotus villosus*) dispersion in Conception Bay, Newfoundland. 1297-1307.
- Hudon, C. Large-scale analysis of Atlantic N.S. American lobster (*Homarus americanus*) landings with respect to habitat, temperature, and wind conditions. 1308-1321.
- Pollard, S.M., R.G. Danzmann, and R.R. Claytor. Association between the regulatory locus *PGM-1r** and life-history types of juvenile Atlantic salmon (*Salmo salar*). 1322-1329.
- Guy, M., W.D. Taylor, and J.C.H. Carter. Decline in total phosphorus in the surface waters of lakes during summer stratification, and its relationship to size distribution of particles and sedimentation. 1330-1337.
- Gu, B., D.M. Schell, and V. Alexander. Stable carbon and nitrogen isotopic analysis of the plankton food web in a subarctic lake. 1338-1344.
- Gundersen, D.T., S. Bustaman, W.K. Seim, and L.R. Curtis. pH, hardness, and humic acid influence aluminum toxicity to rainbow trout (*Oncorhynchus mykiss*) in weakly alkaline waters. 1345-1355.
- Cope, W.G., J.G. Wiener, M.T. Steingraeber, and G.J. Atchison. Cadmium, metal-binding proteins, and growth in bluegill (*Lepomis macrochirus*) exposed to contaminated sediments from the upper Mississippi River basin. 1356-1367.
- Vignier, V., J.H. Vandermeulen, J. Singh, and D. Mossman. Interannual mixed function oxidase (MFO) activity in winter flounder (*Pleuronectes americanus*) from a coal tar contaminated estuary. 1368-1375.
- Lamontagne, S., and D.W. Schindler. Historical status of fish populations in Canadian Rocky Mountain lakes inferred from subfossil *Chaoborus* (Diptera: Chaoboridae) mandibles. 1376-1383.
- Stow, C.A., S.R. Carpenter, and J.F. Amrhein. PCB concentration trends in Lake Michigan coho (*Oncorhynchus kisutch*) and chinook salmon (*O. tshawytscha*). 1384-1390.
- Yang, X., and T. A. Dick. Arctic char (*Salvelinus alpinus*) and rainbow trout (*Oncorhynchus mykiss*) differ in their growth and lipid metabolism in response to dietary polyunsaturated fatty acids. 1391-1400.
- Perry, R.L., M. Stocker, and J. Fargo. Environmental effects on the distributions of groundfish in Hecate Strait, British Columbia. 1401-1409.
- Walker, M.K., P.M. Cook, A.R. Batterman, B.C. Butterworth, C. Berini, J.J. Libal, L.C. Hufnagle, and R.E. Peterson. Translocation of 2, 3, 7, 8-tetrachlorodibenzo-*p*-dioxin from adult female lake trout (*Salvelinus namaycush*) to oocytes: effects on early life stage development and sac fry survival. 1410-1419.
- Chen, Y., D.A. Jackson, and J.E. Paloheimo. Robust regression approach to analyzing fisheries data. 1420-1429.
- Taylor, E.B., T.D. Beacham, and M. Kaeriyama. Population structure and identification of North Pacific Ocean chum salmon (*Oncorhynchus keta*) revealed by an analysis of minisatellite DNA variation. 1430-1442.
- Pringle, C.M., and G.M. Blake. Quantitative effects of atyid shrimp (Decapoda: Atyidae) on the depositional environment in a tropical stream: use of electricity for experimental exclusion. 1443-1450.
- Wipfli, M.S., R.W. Merritt, and W. W. Taylor. Low toxicity of the black fly larvicide *Bacillus thuringiensis* var. *israelensis* to early stages of brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), and steelhead trout (*Oncorhynchus mykiss*) following direct and indirect exposure. 1451-1458.

No. 7, July/n° 7, juillet

- Tuljapurkar, S., C. Boe, and K.W. Wachter. Nonlinear feedback dynamics in fisheries: analysis of the Deriso-Schnute model. 1462-1473.
- Rosenberg, G., and M.L. Ludyanskiy. A nomenclatural review of *Dreissena* (Bivalvia: Dreissenidae), with identification of the quagga mussel as *Dreissena bugensis*. 1474-1484.
- Spidle, A.P., J.E. Marsden, and B. May. Identification of the Great Lakes quagga mussel as *Dreissena bugensis* from the Dnieper River, Ukraine, on the basis of allozyme variation. 1485-1489.
- Väinölä, R., B.J. Riddoch, R.D. Ward, and R.I. Jones. Genetic zoogeography of the *Mysis relicta* species group (Crustacea: Mysidacea) in northern Europe and North America. 1490-1505.
- Pelletier, D., and A.M. Parma. Spatial distribution of Pacific halibut (*Hippoglossus stenolepis*): an application of geostatistics to longline survey data. 1506-1518.

- Young, P.S., and J.J. Cech, Jr. Optimum exercise conditioning velocity for growth, muscular development, and swimming performance in young-of-the-year striped bass (*Morone saxatilis*). 1519-1527.
- Young, P.S., and J.J. Cech, Jr. Effects of different exercise conditioning velocities on the energy reserves and swimming stress responses in young-of-the-year striped bass (*Morone saxatilis*). 1528-1534.
- Cave, J.D., and W.J. Gazey. A preseason simulation model for fisheries on Fraser River sockeye salmon (*Oncorhynchus nerka*). 1535-1549.
- Cumming, B.F., K.A. Davey, J.P. Smol, and H.J.B. Birks. When did acid-sensitive Adirondack lakes (New York, USA) begin to acidify and are they still acidifying? 1550-1568.
- Lambert, Y., J.-D. Dutil, and J. Munro. Effects of intermediate and low salinity conditions on growth rate and food conversion of Atlantic cod (*Gadus morhua*). 1569-1576.
- Clemons, J.H., M.R. van den Heuvel, J.J. Stegeman, D.G. Dixon, and N.C. Bols. Comparison of toxic equivalent factors for selected dioxin and furan congeners derived using fish and mammalian liver cell lines. 1577-1584.
- Xiao, Y. von Bertalanffy growth models with variability in, and correlation between, K and L_{∞} . 1585-1590.
- Marzolf, E.R., P.J. Mulholland, and A.D. Steinman. Improvements to the diurnal upstream-downstream dissolved oxygen change technique for determining whole-stream metabolism in small streams. 1591-1599.
- Grantham, B.A., and B.J. Hann. Leeches (Annelida:Hirudinea) in the Experimental Lakes Area, northwestern Ontario, Canada: patterns of species composition in relation to environment. 1600-1607.
- Boom, J.D.G., E.G. Boulding, and A.T. Beckenbach. Mitochondrial DNA variation in introduced populations of Pacific oyster, *Crassostrea gigas*, in British Columbia. 1608-1614.
- Charpentier, B., and A. Morin. Effect of current velocity on ingestion rates of black fly larvae. 1615-1619.
- Gagen, C.J., W.E. Sharpe, and R.F. Carline. Downstream movement and mortality of brook trout (*Salvelinus fontinalis*) exposed to acidic episodes in streams. 1620-1628.
- Abrahams, M.V. Risk of predation and its influence on the relative competitive abilities of two species of freshwater fishes. 1629-1633.
- Thorp, J.H., A.R. Black, K.H. Haag, and J.D. Wehr. Zooplankton assemblages in the Ohio River: seasonal, tributary, and navigation dam effects. 1634-1643.
- Shirvell, C.S. Effect of changes in streamflow on the microhabitat use and movements of sympatric juvenile coho salmon (*Oncorhynchus kisutch*) and chinook salmon (*O. tshawytscha*) in a natural stream. 1644-1652.
- Smith, T.G., and A.R. Martin. Distribution and movements of belugas, *Delphinapterus leucas*, in the Canadian High Arctic. 1653-1663.
- Perspectives**
- Cury, P. Obstinate nature: an ecology of individuals. Thoughts on reproductive behavior and biodiversity. 1664-1673.
- Schnute, J.T. A general framework for developing sequential fisheries models. 1676-1688.
- Hearn, W.S., and G.M. Leigh. Comparing polynomial and von Bertalanffy growth functions for fitting tag-recapture data. 1689-1691.
- Jensen, J.P., E. Jeppesen, K. Olrik, and P. Kristensen. Impact of nutrients and physical factors on the shift from cyanobacterial to chlorophyte dominance to shallow Danish lakes. 1692-1699.
- Hyllner, S.J., B. Norberg, and C. Haux. Isolation, partial characterization induction, and the occurrence in plasma of the major vitelline envelope proteins in the Atlantic halibut (*Hippoglossus hippoglossus*) during sexual maturation. 1700-1707.
- Fjeld, E., S. Rognerud, and E. Steinnes. Influence of environmental factors on heavy metal concentration in lake sediments in southern Norway indicated by path analysis. 1708-1720.
- Ogle, D.H., G.R. Spangler, and S.M. Shroyer. Determining fish age from temporal signatures in growth increments. 1721-1727.
- Powell, M.D., D.J. Speare, and N. MacNair. Effects of intermittent chloramine-T exposure on growth, serum biochemistry, and fin condition of juvenile rainbow trout (*Oncorhynchus mykiss*). 1728-1736.
- Robinson, C.L.K., and D.M. Ware. Modelling pelagic fish and plankton trophodynamics off southwestern Vancouver Island, British Columbia. 1737-1751.
- Juanes, F., and D.O. Conover. Rapid growth, high feeding rates, and early piscivory in young-of-the-year bluefish (*Pomatomus saltatrix*). 1752-1761.
- Graves, J.E., and J.R. McDowell. Genetic analysis of striped marlin (*Tetrapturus audax*) population structure in the Pacific Ocean. 1762-1768.
- Jackson, L.J., D.J. Rowan, R.J. Cornett, and J. Kalf. *Myriophyllum spicatum* pumps essential and nonessential trace elements from sediments to epiphytes. 1769-1773.
- Cheng, J.-H., and E.S. Chang. Determinants of postmolt size in the American lobster (*Homarus americanus*). II. Folding of premolt cuticle. 1774-1779.
- Kruzynski, G.M., and I.K. Birtwell. A predation bioassay to quantify the ecological significance of sublethal responses of juvenile chinook salmon (*Oncorhynchus tshawytscha*) to the antisepic fungicide TCMTB. 1780-1790.
- Mitton, C.J.A., and D.G. McDonald. Consequences of pulsed DC electrofishing and air exposure to rainbow trout (*Oncorhynchus mykiss*). 1791-1798.
- Mitton, C.J.A., and D.G. McDonald. Effects of electroshock, air exposure, and forced exercise on swim performance in rainbow trout (*Oncorhynchus mykiss*). 1799-1803.
- Minns, C.K., V.W. Cairns, R.G. Randall, and J.E. Moore. An Index of Biotic Integrity (IBI) for fish assemblages in the littoral zone on Great Lakes' Area of Concern. 1804-1822.
- Hoenig, J.M., W.G. Warren, and M. Stocker. Bayesian and related approaches to fitting surplus production models. 1823-1831.

- Aboul Hosn, W., and J.A. Downing. Influence of cover on the spatial distribution of littoral-zone fishes. 1832-1838.
- Cass, A.J., and C.C. Wood. Evaluation of the compensatory fishing hypothesis as an explanation for population cycles in Fraser River sockeye salmon (*Oncorhynchus nerka*). 1839-1854.
- Davis, R.B., D.S. Anderson, S.A. Norton, J.Ford, P.R. Sweets, and J.S. Kahl. Sedimented diatoms in northern New England lakes and their use as pH and alkalinity indicators. 1855-1876.
- Hall, R.J. Responses of benthic communities to episodic acid disturbances in a lake outflow stream at the Experimental Lakes Area, Ontario. 1877-1892.
- Kjesbu, O.S., and J.C. Holm. Oocyte recruitment in first-time spawning Atlantic cod (*Gadus morhua*) in relation to feeding regime. 1893-1898.
- Bergh, Ø., K.E. Naas, and T. Harboe. Shift in the intestinal microflora of Atlantic halibut (*Hippoglossus hippoglossus*) larvae during first feeding. 1899-1903.
- No. 9, September/ n° 9, septembre
- Ventling-Schwank, A.R., and D.M. Livingstone. Transport and burial as a cause of whitefish (*Coregonus* sp.) egg mortality in a eutrophic lake. 1908-1919.
- Böhlin, T., C. Dellefors, and U. Faremo. Probability of first sexual maturation of male parr in wild sea-run brown trout (*Salmo trutta*) depends on condition factor 1 yr in advance. 1920-1926.
- Gyselman, E.C. Fidelity of anadromous Arctic char (*Salvelinus alpinus*) to Nauyuk Lake, N.W.T., Canada. 1927-1934.
- Adare, K.I., and D.C. Lasenby. Seasonal changes in the total lipid content of the opossum shrimp, *Mysis relicta* (Malacostraca: Mysidacea). 1935-1941.
- Campana, S.E., A.J. Fowler, and C.M. Jones. Otolith elemental fingerprinting for stock identification of Atlantic cod (*Gadus morhua*) using laser ablation ICPMS. 1942-1950.
- Wagemann, R., M.J. Capel, R. Hesslein, and M. Stephenson. Sediment-water distribution coefficients and speciation of cadmium in a Canadian Shield lake. 1951-1958.
- Brooker, A.L., D. Cook, P. Bentzen, J.M. Wright, and R.W. Doyle. Organization of microsatellites differs between mammals and cold-water teleost fishes. 1959-1966.
- Johansen, J.A., C.J. Kennedy, R.M. Sweeting, A.P. Farrell, and B.A. McKeown. Sublethal effects of tetrachloroquaiacol on juvenile rainbow trout, *Oncorhynchus mykiss*, following acute and chronic exposure. 1967-1974.
- Kiessling, A., D.A. Higgs, B.S. Dosanjh, and J.G. Eales. Influence of sustained exercise at two ration levels on growth and thyroid function of all-female chinook salmon (*Oncorhynchus tshawytscha*) in seawater. 1975-1984.
- Morin, P.-P., Ø. Andersen, E. Haug, and K.B. Døving. Changes in serum free thyroxine, prolactin, and olfactory activity during induced smoltification in Atlantic salmon (*Salmo salar*). 1985-1992.
- Stahl, T.P., and R.A. Stein. Influence of larval gizzard shad (*Dorosoma cepedianum*) density on piscivory and growth of young-of-year saugeye (*Stizostedion vitreum* x *S. canadense*). 1993-2002.
- Amyot, M., B. Pinel-Alloul, and P.G.C. Campbell. Abiotic and seasonal factors influencing trace metal levels (Cd, Cu, Ni, Pb, and Zn) in the freshwater amphipod *Gammarus fasciatus* in two fluvial lakes of the St. Lawrence River. 2003-2016.
- Walton, W.E., S.S. Easter, Jr., C. Malinoski, and N. G. Hairston, Jr. Size-related change in the visual resolution of sunfish (*Lepomis* spp.). 2017-2026.
- Mullen, A.J. Effects of movement on stock assessment in a restricted-range fishery. 2027-2033.
- Vézina, A.F., and M.L. Pace. An inverse model analysis of planktonic food webs in experimental lakes. 2034-2044.
- Holmes, J.A., F.W.H. Beamish, J.G. Seelye, S.A. Sower, and J.H. Youson. Long-term influence of water temperature, photoperiod, and food deprivation on metamorphosis of sea lamprey, *Petromyzon marinus*. 2045-2051.
- Chow-Fraser, P., D.O. Trew, D. Findlay, and M. Stainton. A test of hypotheses to explain the sigmoidal relationship between total phosphorus and chlorophyll *a* concentrations in Canadian lakes. 2052-2065.
- Chen, Y., and H.H. Harvey. Maturation of white sucker, *Catostomus commersoni*, populations in Ontario. 2066-2076.
- Johnston, T.A., and J.A. Mathias. Feeding ecology of walleye, *Stizostedion vitreum*, larvae: effects of body size, zooplankton abundance, and zooplankton community composition. 2077-2089.
- Parks, J.W., P.C. Craig, and G.W. Ozburn. Relationships between mercury concentrations in walleye (*Stizostedion vitreum*) and northern pike (*Esox lucius*): implications for modelling and biomonitoring. 2090-2104.
- Jackson, A.E., A.S.W. de Freitas, L. Hooper, A. Mallet, and J.A. Walter. Phosphorus metabolism monitored by ³¹P NMR in juvenile sea scallop (*Placopecten magellanicus*) overwintering in pearl nets at a Nova Scotian aquaculture site. 2105-2114.
- Perspectives
- McDaniels, T.L., M. Healey, and R.K. Paisley. Cooperative fisheries management involving First Nations in British Columbia: an adaptive approach to strategy design. 2115-2125.
- Hutchings, J.A., and R.A. Myers. What can be learned from the collapse of a renewable resource? Atlantic cod, *Gadus morhua*, of Newfoundland and Labrador. 2126-2146.
- Letters and comments/Lettres et commentaires
- Schelske, C.L., and E.F. Stroemer. Did top-down effects amplify anthropogenic nutrient perturbations in Lake Michigan? Comments on Evans (1992). 2147-2149.
- Evans, M.S. Reply to "Did top-down effects amplify anthropogenic nutrient perturbations in Lake Michigan?" by C.L. Schelske and E.F. Stroemer. 2149-2151.

- Hughes, N.F., and J.B. Reynolds. Why do Arctic grayling (*Thymallus arcticus*) get bigger as you go upstream? 2154-2163.
- Whalen, K.G., and G.W. LaBar. Survival and growth of Atlantic salmon (*Salmo salar*) fry stocked at varying densities in the White River, Vermont. 2164-2169.
- Shrimpton, J.M., N.J. Bernier, G.K. Iwama, and D.J. Randall. Differences in measurements of smolt development between wild and hatchery-reared juvenile coho salmon (*Oncorhynchus kisutch*) before and after saltwater exposure. 2170-2178.
- Shrimpton, J.M., N.J. Bernier, and D.J. Randall. Changes in cortisol dynamics in wild and hatchery-reared juvenile coho salmon (*Oncorhynchus kisutch*) during smoltification. 2179-2187.
- Brauner, C.J., G.K. Iwama, and D.J. Randall. The effect of short-duration seawater exposure on the swimming performance of wild and hatchery-reared juvenile coho salmon (*Oncorhynchus kisutch*) during smoltification. 2188-2194.
- Sandström, O. Incomplete recovery in a coastal fish community exposed to effluent from a modernized Swedish bleached kraft mill. 2195-2202.
- Barker, D.E., R.A. Khan, and R. Hooper. Bioindicators of stress in winter flounder, *Pleuronectes americanus*, captured adjacent to a pulp and paper mill in St. George's Bay, Newfoundland. 2203-2209.
- Muotka, T., and A. Penttinen. Detecting small-scale spatial patterns in lotic predator-prey relationships: statistical methods and case study. 2210-2218.
- Roberts, R.D., M.T. Arts, M.S. Evans, and M.J. Waiser. The coupling of heterotrophic bacterial and phytoplankton production in a hypertrophic, shallow prairie lake. 2219-2226.
- Nalepa, T.F. Decline of native unionid bivalves in Lake St. Clair after infestation by zebra mussel, *Dreissena polymorpha*. 2227-2233.
- Schloesser, D.W., and T.F. Nalepa. Dramatic decline of unionid bivalves in offshore waters of western Lake Erie after infestation by the zebra mussel, *Dreissena polymorpha*. 2234-2242.
- Twenty-fifth Anniversary of the Experimental Lakes Area
- Hecky, R.E., D.M. Rosenberg, and P. Campbell. The 25th Anniversary of the Experimental Lakes Area and the history of Lake 227. 2243-2246.
- Hendzel, L.L., R.E. Hecky, and D.L. Findlay. Recent changes of N_2 -fixation in Lake 227 in response to reduction of the N:P loading ratio. 2247-2253.
- Findlay, D.L., R.E. Hecky, L.L. Hendzel, M.P. Stainton, and G.W. Regehr. Relationship between N_2 -fixation and heterocyst abundance and its relevance to the nitrogen budget of Lake 227. 2254-2266.
- Kling, H.J., D.L. Findlay, and J. Komárek. *Aphanizomenon schindleri* sp. nov.: a new nostocacean cyanoprokaryote from the Experimental Lakes Area, northwestern Ontario. 2267-2273.
- Wolfe, B., H.J. Kling, G.J. Brunskill, and P. Wilkinson. Multiple dating of a freeze core from Lake 227, an experimentally fertilized lake with varved sediments. 2274-2285.
- Leavitt, P.R., and D.L. Findlay. Comparison of fossil pigments with 20 years of phytoplankton data from eutrophic Lake 227, Experimental Lakes Area, Ontario. 2286-2299.
- Zeeb, B.A., C.E. Christie, J.P. Smol, D.L. Findlay, H.J. Kling, and H.J.B. Birks. Responses of diatom and chrysophyte assemblages in Lake 227 sediments to experimental eutrophication. 2300-2311.
- Hann, B.J., P.R. Leavitt, and P.S.S. Chang. Cladocera community response to experimental eutrophication in Lake 227 as recorded in laminated sediments. 2312-2321.
- Leavitt, P.R., B.J. Hann, J.P. Smol, B.A. Zeeb, C.E. Christie, B. Wolfe, and H.J. Kling. Paleolimnological analysis of whole-lake experiments: an overview of results from Experimental Lakes Area Lake 227. 2322-2332.
- Perspectives
- West, I.F., and R.W. Gaudie. Determination of fish age using ^{210}Pb : ^{226}Ra disequilibrium methods. 2333-2340.
- Gaudie, R.W. The morphological basis of fish age estimation methods based on the otolith of *Nemadactylus macropterus*. 2341-2362.
- Pinkerton, E.W. Local fisheries co-management: a review of international experiences and their implications for salmon management in British Columbia. 2363-2378.

No. 11, November/n° 11, novembre

- Sutton, T.M., and S.H. Bowen. Significance of organic detritus in the diet of larval lampreys in the Great Lakes basin. 2380-2387.
- Rowan, D. J., and J.B. Rasmussen. Bioaccumulation of radiocesium by fish: the influence of physicochemical factors and trophic structure. 2388-2410.
- Leavitt, P.R., D.E. Schindler, A.J. Paul, A.K. Hardie, and D.W. Schindler. Fossil pigment records of phytoplankton in trout-stocked alpine lakes. 2411-2423.
- Keller, W., and M. Conlon. Crustacean zooplankton communities and lake morphometry in Precambrian Shield lakes. 2424-2434.
- Stemberger, R.S., and J.M. Lazorchak. Zooplankton assemblage responses to disturbance gradients. 2435-2447.
- Munro, J., C. Audet, M. Besner, and J.-D. Dutil. Physiological response of American plaice (*Hippoglossoides platessoides*) exposed to low salinity. 2448-2456.
- Poister, D., D.E. Armstrong, and J.P. Hurley. A 6-yr record of nutrient element sedimentation and recycling in three north temperate lakes. 2457-2466.
- Hudon, C. Biological events during ice breakup in the Great Whale River (Hudson Bay). 2467-2481.
- Zia, S., and D.G. McDonald. Role of the gills and gill chloride cells in metal uptake in the freshwater-adapted rainbow trout, *Oncorhynchus mykiss*. 2482-2492.

- Yang, C.Z., and L.J. Albright.** The harmful phytoplankter *Chaetoceros concavicornis* causes high mortalities and leucopenia in chinook salmon (*Oncorhynchus tshawytscha*) and coho salmon (*O. kisutch*). 2493-2500.
- Post, J.R., and D.J. McQueen.** Variability in first-year growth of yellow perch (*Perca flavescens*): predictions from a simple model, observations, and an experiment. 2501-2512.
- Ryan, P.A., and T.R. Marshall.** A niche definition for lake trout (*Salvelinus namaycush*) and its use to identify populations at risk. 2513-2519.
- Paul, A.J., and D.W. Schindler.** Regulation of rotifers by predatory calanoid copepods (subgenus *Hesperodiaptomus*) in lakes of the Canadian Rocky Mountains. 2520-2528.
- Tranvik, L.J., W. Granéli, and G. Gahnström.** Microbial activity in acidified and limed humic lakes. 2529-2536.
- Sampson, D. B.** Estimating the number of fish landed from their total weight and a sample average weight. 2637-2548.
- Forrester, G.E.** Diel patterns of drift by five species of mayfly at different levels of fish predation. 2549-2557.
- Trudel, M., and D. Boisclair.** Seasonal consumption by dace (*Phoxinus eos* × *P. neogaeus*): a comparison between field and bioenergetic model estimates. 2558-2567.
- Sprules, W.G., S.B. Brandt, and M. Munawar.** Introduction: multiple trophic level comparisons of Lakes Michigan and Ontario. 2568-2569.
- Johengen, T.H., O.E. Johannsson, G.L. Pernie, and E.S. Millard.** Temporal and seasonal trends in nutrient dynamics and biomass measures in Lakes Michigan and Ontario in response to phosphorus control. 2570-2578.
- Millard, E.S., and P.E. Sager.** Comparison of phosphorus, light climate, and photosynthesis between two culturally eutrophied bays: Green Bay, Lake Michigan, and the Bay of Quinte, Lake Ontario. 2579-2590.
- Johannsson, O.E., L.G. Rudstam, and D.C. Lasenby.** *Mysis relicta*: Assessment of metalimnetic feeding and implications for competition with fish in Lakes Ontario and Michigan. 2591-2602.
- Sprules, W.G., and A.P. Goyke.** Size-based structure and production in the pelagia of Lakes Ontario and Michigan. 2603-2611.
- Reviews/ synthèses**
- Jackson, G.D.** Application and future potential of statolith increment analysis in squids and sepoids. 2612-2625.
- Gowan, C., M.K. Young, K.D. Fausch, and S.C. Riley.** Restricted movement in resident stream salmonids: a paradigm lost? 2626-2637.
- Thompson, G.G.** Confounding of gear selectivity and the natural mortality rate in cases where the former is a nonmonotone function of age. 2654-2664.
- Collie, J.S., and P.D. Spencer.** Modeling predator-prey dynamics in a fluctuating environment. 2665-2672.
- McAllister, M.K., E. K. Pikitch, A.E. Punt, and R. Hilborn.** A Bayesian approach to stock assessment and harvest decisions using the sampling/importance resampling algorithm. 2673-2687.
- Sampson, D.B.** Fishing tactics in a two-species fisheries model: the bioeconomics of bycatch and discarding. 2688-2694.
- Megrey, B., A.B. Hollowed, and R.T. Baldwin.** Sensitivity of optimum harvest strategy estimates to alternative definitions of risk. 2695-2704.
- Walters, C.** Use of gaming procedures in evaluation of management experiments. 2705-2714.
- Rosenberg, A.A., and V.R. Restrepo.** Uncertainty and risk evaluation in stock assessment advice for U.S. marine fisheries. 2715-2720.
- Hecky, R.E., P. Campbell and D.M. Rosenberg.** Introduction to experimental lakes and natural processes: 25 years of observing natural ecosystems at the Experimental Lakes Area. 2721-2722.
- Beatty, K.G.** Sediment transport in a small stream following two successive forest fires. 2723-2733.
- Schindler, E.U., E.R. DeBruyn, E.J. Fee, and J.A. Shearer.** Sensitivity of estimates of seasonal phytoplankton photosynthesis to sampling frequency. 2734-2738.
- Campbell, P.** Phosphorus budgets and stoichiometry during the open-water season in two unmanipulated lakes in the Experimental Lakes Area, Northwestern Ontario. 2739-2755.
- Fee, E.J., R.E. Hecky, G.W. Regehr, L.L. Hendzel, and P. Wilkinson.** Effects of lake size on nutrient availability in the mixed layer during summer stratification. 2756-2768.
- Guildford, S.J., L.L. Hendzel, H.J. Kling, E.J. Fee, G.G.C. Robinson, R.E. Hecky, and S.E.M. Kasian.** Effects of lake size on phytoplankton nutrient status. 2769-2783.
- Turner, M.A., E.T. Howell, G.G.C. Robinson, P. Campbell, R.E. Hecky, and E.U. Schindler.** Roles of nutrients in controlling growth of epilithon in oligotrophic lakes of low alkalinity. 2784-2793.
- Findlay, D.L., S.E.M. Kasian, L.L. Hendzel, G.W. Regehr, E.U. Schindler, and J.A. Shearer.** Biomanipulation of Lake 221 in the Experimental Lakes Area (ELA): effects on phytoplankton and nutrients. 2794-2807.
- Fleming, I.A., B. Jonsson, and M.R. Gross.** Phenotypic divergence of sea-ranched, farmed, and wild salmon. 2808-2824.
- Hansson, L.-A., L.G. Rudstam, T.B. Johnson, P. Soranno, and Y. Allen.** Patterns in algal recruitment from sediment to water in a dimictic, eutrophic lake. 2825-2833.
- Goddard, S.V., J.S. Wroblewski, C.T. Taggart, K.A. Howse, W.L. Bailey, M.H. Kao, and G.L. Fletcher.** Overwintering of adult northern Atlantic cod (*Gadus morhua*) in cold inshore waters as evidenced by plasma antifreeze glycoprotein levels. 2834-2842.

No. 12, December/n° 12, décembre

- Richards, L.J., and B.A. Megrey.** Recent developments in the quantitative analysis of fisheries data. 2640-2641.
- Kleiber, P., and J. Hampton.** Modeling effects of FADs and islands on movement of skipjack tuna (*Katsuwonus pelamis*): estimating parameters from tagging data. 2642-2653.

- Beamish, R.J., C.-E.M. Neville, B.L. Thomson, P.J. Harrison, and M. St. John. A relationship between Fraser River discharge and interannual production of Pacific salmon (*Oncorhynchus* spp.) and Pacific herring (*Clupea pallasii*) in the Strait of Georgia. 2843-2855.
- Magnan, P., M.A. Rodríguez, P. Legendre, and S. Lacasse. Dietary variation in a freshwater fish species: relative contributions of biotic interactions, abiotic factors, and spatial structure. 2856-2865.
- Miloslavich, P., and L. Dufresne. Development and effect of female size on egg and juvenile production in the neogastropod *Buccinum cyaneum* from the Saguenay Fjord. 2866-2872.
- Chick, J.H., and C.C. McIvor. Patterns in the abundance and composition of fishes among beds of different macrophytes: viewing a littoral zone as a landscape. 2873-2882.
- Supplement No. 1/Supplément n° 1*
- Gharrett, A.J., and W.W. Smoker. Introduction to genetics of subarctic fish and shellfish. 1-3.
- Hartl, D.L. Macro and micro in molecular evolution. 4-8.
- Smoker, W. W., A.J. Gharrett, M.S. Stekol, and J.E. Joyce. Genetic analysis of size in an anadromous population of pink salmon. 9-15.
- Galbreath, B.F., and G.H. Thorgaard. Viability and freshwater performance of Atlantic salmon (*Salmo salar*) × brown trout (*Salmo trutta*) triploid hybrids. 16-24.
- Joyce, J.E., R. Heintz, W.W. Smoker, and A.J. Gharrett. Survival to fry and seawater tolerance of diploid and triploid hybrids between chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), and pink salmon (*O. gorbuscha*). 25-30.
- Habicht, C., J.E. Seeb, R.B. Gates, I.R. Brock, and C.A. Olito. Triploid coho salmon outperform diploid and triploid hybrids between coho salmon and chinook salmon during their first year. 31-37.
- Teplitz, R.L., J.E. Joyce, S.I. Doroshov, and B.H. Min. A preliminary ploidy analysis of diploid and triploid salmonids. 38-41.
- Miller, G.D., J.E. Seeb, B.G. Bue, and S. Sharr. Saltwater exposure at fertilization induces ploidy alterations, including mosaicism, in salmonids. 42-49.
- Kondzela, C.M., C.M. Guthrie, S.L. Hawkins, C.D. Russell, J.H. Helle, and A.J. Gharrett. Genetic relationships among chum salmon populations in southeast Alaska and Northern British Columbia. 50-64.
- Phelps, S.R., L.L. LeClair, S. Young, and H.L. Blankenship. Genetic diversity patterns of chum salmon in the Pacific Northwest. 65-83.
- Wilmot, R.L., R.J. Everett, W.J. Spearman, R. Baccus, N.V. Varnavskaya, and S.V. Putivkin. Genetic stock structure of western Alaska chum salmon and a comparison with Russian Far East stocks. 84-94.
- Winans, G.A., P.B. Aebersold, S. Urawa, and N.V. Varnavskaya. Determining continent of origin of chum salmon (*Oncorhynchus keta*) using genetic stock identification techniques: status of allozyme baseline in Asia. 95-113.
- Wood, C.C., B.E. Riddell, D.T. Rutherford, and R.E. Withler. Biochemical genetic survey of sockeye salmon (*Oncorhynchus nerka*) in Canada. 114-131.
- Varnavskaya, N.V., C. C. Wood, and R. J. Everett. Genetic variation in sockeye salmon (*Oncorhynchus nerka*) populations of Asia and North America. 132-146.
- Varnavskaya, N.V., C. C. Wood, R. J. Everett, R.L. Wilmot, V. S. Varnavsky, V. V. Midanaya, and T.P. Quinn. Genetic differentiation of subpopulations of sockeye salmon (*Oncorhynchus nerka*) within lakes of Alaska, British Columbia, and Kamchatka, Russia. 145-155.
- Shaklee, J.B., and N.V. Varnavskaya. Electrophoretic characterization of odd-year pink salmon (*Oncorhynchus gorbuscha*) populations from the Pacific coast of Russia, and comparison with selected North American populations. 156-169.
- Adams, N.S., W.J. Spearman, C. V. Burger, K.P. Currens, C. B. Schreck, and H.W. Li. Variation in mitochondrial DNA and allozymes discriminates early and late forms of chinook salmon (*Oncorhynchus tshawytscha*) in the Kenai and Kasilof rivers, Alaska. 170-179.
- Crane, P.A., L.W. Seeb, and J. E. Seeb. Genetic relationships among *Salvelinus* species inferred from allozyme data. 180-195.
- Phillips, R.B., S.A. Manley, and T.J. Daniels. Systematics of the salmonid genus *Salvelinus* inferred from ribosomal DNA sequences. 196-202.
- Gold, J.R., L. R. Richardson, C. Furman, and F. Sun. Mitochondrial DNA diversity and population structure in marine fish species from the Gulf of Mexico. 203-212.
- King, T.L., R. Ward, and E.G. Zimmerman. Population structure of eastern oysters (*Crassostrea virginica*) inhabiting the Laguna Madre, Texas, and adjacent bay systems. 215-222.
- Zhivotovsky, L.A., A.J. Gharrett, A.J. Gharrett, A.J. McGregor, M.K. Glubokovsky, and M.W. Feldman. Gene differentiation in Pacific salmon (*Oncorhynchus* sp.): facts and models with reference to pink salmon (*O. gorbuscha*). 223-232.
- Jørstad, K. E., G. Dahle, and O.I. Paulsen. Genetic comparison between Pacific herring (*Clupea pallasii*) and Norwegian fjord stock of Atlantic herring (*Clupea harengus*). 233-239.
- Bernatchez, L., and J.J. Dodson. Phylogenetic relationships among palearctic and nearctic whitefish (*Coregonus* sp.) populations as revealed by mitochondrial DNA variation. 240-250.
- Spruell, P., S. A. Cummings, Y. Kim, and G.H. Thorgaard. Comparison of three anadromous rainbow trout (*Oncorhynchus mykiss*) populations using DNA fingerprinting and mixed DNA samples. 252-257.
- Leung, F.C., M. Welt, R.D. Quesenberry, and X-Z. Shen. DNA fingerprinting and cloning of hypervariable minisatellite repeats in salmonids. 258-266.
- Withler, R.E., T.D. Beacham, R.F. Watkins, and T.A. Stevens. Identification of farm-reared and native chinook salmon (*Oncorhynchus tshawytscha*) on the west coast of Vancouver Island, British Columbia, using the nuclear DNA probe B2-2. 267-276.

- Hartley, S.E., and W.S. Davidson.** Distribution of satellite DNA sequences isolated from Arctic char, *Salvelinus alpinus*, in the genus *Salvelinus*. 277-283.
- Danzmann, R.G., M.M. Ferguson, and D.M. Heculuck.** Heterogeneity in the distribution of mitochondrial DNA haplotypes in female rainbow trout spawning in different seasons. 284-289.
- Nielson, J.L., and C. Gan, and W.K. Thomas.** Differences in genetic diversity for mitochondrial DNA between hatchery and wild populations of *Oncorhynchus*. 290-297.
- Gresswell, R.E., W.J. Liss, and G.L. Larson.** Life-history organization of Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri*) in Yellowstone Lake. 298-309.
- Waples, R.S., and C. Do.** Genetic risk associated with supplementation of Pacific salmonids: captive broodstock programs. 310-329.

ANNUAL REPORT/RAPPORT ANNUEL

Abbreviation/Abréviation: AR

- Department of Fisheries and Oceans.** 1994. Annual report of the Department of Fisheries and Oceans for the year ending March 31, 1992. = Rapport annuel du ministère des Pêches et des Océans pour l'exercice se terminant le 31 mars 1992. 33 p. = 39 p. (8)
- Department of Fisheries and Oceans.** 1994. Annual report of the Department of Fisheries and Oceans for the year ending March 31, 1993. = Rapport annuel du ministère des Pêches et des Océans pour l'exercice se terminant le 31 mars 1993. 32 p. = 34 p. (8)

CANADIAN TECHNICAL REPORT OF FISHERIES AND AQUATIC SCIENCES/ RAPPORT TECHNIQUE CANADIEN DES SCIENCES HALIEUTIQUES ET AQUATIQUES

Abbreviation/Abréviation: TF

These reports contain scientific and technical information that is of sufficient importance to be preserved but that is not appropriate for primary scientific publication. No restriction is placed on subject matter and the series reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries management, technology and development, and aquatic environments relevant to Canada. The reports are abstracted in *Aquatic sciences and fisheries abstracts* and are indexed annually in the Department's index to scientific and technical publications. The number in parentheses at the end of each reference indicates the name of the establishment from which the report originated (see pages 2762 and 2763 for addresses). Copies of reports can be obtained from Micromedia Limited, 165 Hôtel de Ville, Hull (Québec) J8X 3X2.

Ces rapports contiennent des données scientifiques et techniques suffisamment importantes pour être consignées mais qui ne se prêtent pas à la publication dans un journal scientifique. Comme il n'y a aucune restriction quant aux sujets abordés, la collection reflète la vaste gamme des intérêts et des politiques du ministère des Pêches et des Océans, notamment dans les domaines de la gestion des pêches, de la technologie, du développement et des milieux aquatiques s'appliquant au Canada. Les rapports sont résumés dans *Résumés des sciences aquatiques et halieutiques* (ASFA) et figurent dans l'index annuel des publications scientifiques et techniques du ministère. Le nombre entre parenthèses après le titre de chaque rapport représente l'établissement qui a fourni le rapport (les adresses se trouvent aux pages 2762 et 2763). On peut obtenir des exemplaires des rapports en communiquant avec Micromedia limitée, 165, rue Hôtel de Ville, Hull (Québec) J8X 3X2.

- 1900 Simard, Y., J. Benoit, M. Desgagnés, L. Savard et S. Hurtubise.** 1992. Atlas of the northern shrimp (*Pandalus borealis*) fishing in the Gulf of St. Lawrence 1982-1991: catch, effort, yield, season. = Atlas de la pêche à la crevette nordique (*Pandalus borealis*) dans le golfe du Saint-Laurent 1982-1991: captures, effort, rendement saison. vi, 73 p. (11)
- 1901 Solar, I.L., W.E. Hajen, and E.M. Donaldson.** 1992. A bibliography of tetraploidy in fish (1964-1991). iv, 22 p. (2)
- 1910 Stewart, D.B., R.A. Ratynski, L.M.J. Bernier, and D.J. Ramsey.** 1993. A fishery development strategy for the Canadian Beaufort Sea-Amundsen Gulf area. v, 127 p. (3)
- 1924 Pike, D.G.** 1994. The fishery for Greenland halibut (*Reinhardtius hippoglossoides*) in Cumberland Sound, Baffin Island, 1987 - 1992. iv, 20 p. (3)
- 1925 Rutherford, K.L.** 1993. Catch and effort statistics of the Canadian groundfish fishery on the Pacific coast in 1991. v, 94 p. (1)
- 1929 Healey, J., M.R. Servos, and K.R. Munkittrick.** 1994. Tracers of exposure of fish to pulp and paper mill effluents - a review of the published literature. iv, 96 p. (9)

- 1931 McGladdery, S.E., R.E. Drinnan, and M.F. Stephenson. 1993. A manual of parasites, pests and diseases of Canadian Atlantic bivalves. ii, 121 p. (14)
- 1932 Irvine, J.R., J.F.T. Morris, and L.M. Cobb. 1993. Area-under-the-curve salmon escapement estimation manual. viii, 84 p. (1)
- 1933 Bams, R.A. 1993. Coho salmon smolt production from Kelvin Creek (Cowichan River watershed) B.C., during four years of colonization with hatchery and salvaged wild fry. iv, 53 p. (1)
- 1934 Hickey, W.M., G. Brothers, and D.L. Boulos. 1993. A study of selective fishing methods for the northern cod otter trawl fishery. vi, 31 p. (7)
- 1936 Minns, C.K., V.W. Cairns, R.G. Randall, A. Crowder, and A. McLaughlin. 1993. Macrophyte surveys of littoral habitats in Great Lakes' Areas of Concern: The Bay of Quinte, Hamilton Harbour, and Severn Sound - 1988 to 1991. viii, 60 p. (9)
- 1939 Arai, M.N., G.A. McFarlane, M.W. Saunders, and G.M. Mapstone. 1993. Spring abundance of Medusae, Ctenophores, and Siphonophores off southwest Vancouver Island: Possible competition or predation on sablefish larvae. iv, 37 p. (1)
- 1940 Stewart, R.E.A., P.R. Richard, and B.E. Stewart. (eds.) 1993. Report of the 2nd Walrus International Technical and Scientific (WITS) Workshop, 11-15 January 1993, Winnipeg, Manitoba, Canada. viii, 91 p. (3)
- 1941 Randall, R.G., C.K. Minns, V.W. Cairns, and J.E. Moore. 1993. Effect of habitat degradation on the species composition and biomass of fish in Great Lakes Areas of Concern. viii, 37 p. (9)
- 1942 Baddaloo, E.G., S. Ramamoorthy, and J.W. Moore. (eds.) 1993. Proceedings of the Nineteenth Annual Aquatic Toxicity Workshop: October 4-7, 1992. Edmonton, Alberta. 489 p. (8)
- 1943 Stobo, W.T., and G.M. Fowler. 1994. Aerial surveys of seals in the Bay of Fundy and off southwest Nova Scotia. iv, 57 p.
- 1945 Booth, D.A., and T.W. Sephton. 1993. Flushing of oyster (*Crassostrea virginica*) larvae from a small tidal bay. v, 21 p. (14)
- 1946 Sinclair, A. (ed.) 1993. Report on the assessments of groundfish stocks in the Canadian Northwest Atlantic May 4-14, 1993. v, 200 p.
- 1946F Sinclair, A. (Rédacteur) 1993. Rapport sur l'évaluation des stocks de poisson de fond des eaux canadiennes de l'Atlantique nord-ouest du 4 au 14 mai 1993. vi, 215 p. (14)
- 1947 Payne, J.F., W. Melvin, A. Mathieu, and L. Fancey. 1994. Biomarkers of stress in urban rivers: Mixed-function-oxygenase and acetylcholinesterase effects in brown trout in rivers in St. John's, Newfoundland. v, 23 p. (7)
- 1948 Wilson, R.C.H., R. J. Beamish, F. Aitkens, and J. Bell. (eds.) 1994. Review of the marine environment and biota of Strait of Georgia, Puget Sound and Juan de Fuca Strait: Proceedings of the BC/Washington Symposium on the Marine Environment, January 13 & 14, 1994. x, 390 p. (12)
- 1949 Hargrave, B.T. (ed.) 1994. Modelling benthic impacts of organic enrichment from marine aquaculture. xi, 125 p. (5)
- 1950 Marshall, K.E., L.G. Heuring and J.A. Babaluk. A bibliography of the Arctic charr, *Salvelinus alpinus* (L.), complex: 1990-1993. iv, 36 p. (3)
- 1951 Wastle, R.J., J.A. Babaluk, and G.M. Decterow. A bibliography of marking fishes with tetracyclines including references to effects on fishes. iv, 26 p. (3)
- 1952 Nielson, G.A. 1994. Comparison of the fishing efficiency of research vessels used in the southern Gulf of St. Lawrence groundfish surveys from 1971 to 1992. iv, 56 p. (14)
- 1953 Simon, J.E., and P.A. Comeau. 1994. Summer distribution and abundance trends of species caught on the Scotian Shelf from 1970-92, by the Research Vessel Groundfish Survey. ix, 145 p. (5)
- 1954 Patalas, K., J. Patalas, and A. Salki. 1994. Planktonic crustaceans in lakes of Canada (distribution of species, bibliography). v, 218 p. (3)
- 1955 Solar, L.L., E.M. Donaldson, and J. Charles. 1994. The effect of three estrogens on the direct feminization of chinook salmon (*Oncorhynchus tshawytscha*). iii, 8 p. (2)
- 1956 Chadwick, M., and L. Robichaud. 1993. Report of activities (1991-1993) - Marine and Anadromous Fish Division. 46 p. (14)
- 1957 Hamilton, P.B. (ed.) 1994. Proceedings of the Fourth Arctic-Antarctic Diatom Symposium (Workshop). Canadian Museum of Nature, Ottawa, Ontario, Canada. September 18-21, 1993. iv, 139 p. (8)
- 1958 Page, F.H., R.J. Losier, S.J. Smith, and K. Hatt. 1994. Associations between cod, and temperature, salinity and depth within the Canadian groundfish bottom trawl surveys (1970-93) conducted within NAFO divisions 4VWX and 5Z. vii, 160 p. (4)
- 1959 Smith, S.J., R.J. Losier, F.H. Page, and K. Hatt. 1994. Associations between haddock, and temperature, salinity and depth within the Canadian groundfish bottom trawl surveys (1970-1993) conducted in NAFO Divisions 4VWX and 5Z. vi, 70 p. (4)
- 1960 Prouse, N.J. 1994. Ranking harbours in the Maritime Provinces of Canada for potential to contaminate American lobster (*Homarus americanus*) with polycyclic aromatic hydrocarbons. v, 50 p. (5)
- 1962 Fitzsimons, J.D. 1994. An evaluation of lake trout spawning habitat characteristics and methods for their detection. vi, 26 p. (9)
- 1964 Hickey, W.M., G. Brothers, and D.L. Boulos. 1993. By-catch reduction in the northern shrimp fishery. vii, 41 p. (7)
- 1966 Myers, R.A., N.J. Barrowman, G. Mertz, J. Gamble, and H.G. Hunt. 1994. Analysis of continuous plankton recorder data in the Northwest Atlantic 1959-1992. iii, [246] p. (7)
- 1967 Williams, I.V., T.J. Brown, and G. Langford. 1994. Geographic distribution of salmon spawning streams of British Columbia with an index of spawner abundance. vii, 200 p. (1)
- 1968 Waddell, B.J., and S. McKinnell. 1994. Japanese squid driftnet fishery 1988-1990: what the observers saw versus the reported catches in the fleet. A study of flying squid, albacore tuna and Pacific pomfret catch statistics. viii, 63 p. (1)
- 1969 Freeman, K.R., K.L. Perry, T.G. DiBacco, and D.J. Scarratt. 1994. Observations on two mytilid species from a Nova Scotian mussel farm. iv, 47 p. (6)

- 1970 Marshall, K.E. 1994. Fish productive capacity and littoral habitat: an annotated bibliography referencing lake trout, lake whitefish, northern pike and walleye in boreal forest lakes. iv, 91 p. (3)
- 1971 Schweigert, J.F., and C. Fort. 1994. Stock assessment for British Columbia herring in 1993 and forecasts of the potential catch in 1994. vii, 67 p. (1)
- 1972 Bourne, N.F., G.D. Heritage, and G. Cawdell. 1994. Intertidal clam surveys of British Columbia - 1991. x, 155 p. (1)
- 1973 Collicut, L.D., T.F. Shardlow, B.D. Smith and G.E. Gillespie. 1994. North Vancouver Island sport fishery creel survey statistics for salmon and groundfish, 1992. vi, 53 p. (1)
- 1974 Collicut, L.D., T.F. Shardlow, and G.E. Gillespie. 1994. North Vancouver Island sport fishery creel survey statistics for salmon and groundfish, 1993. vi, 53 p. (1)
- 1975 Stocker, M. 1994. Groundfish stock assessments for the west coast of Canada in 1993 and recommended yield options for 1994. v, 352 p. (1)
- 1976 Shaw, W. 1994. Oceanographic Sampling Manual for the longterm Cooperative Plankton Research Monitoring Program (COPRA). vii, 45 p. (1)
- 1979 Angel, J.R., D.L. Burke, R.N. O'Boyle, F.G. Peacock, M. Sinclair, and K.C.T. Zwanenburg. 1994. Report of the Workshop on Scotia-Fundy Groundfish Management from 1977 to 1993. vi, 175 p. (5)
- 1980F Gendron, L., C. Cyr et P. Fradette. 1994. Détermination du potentiel de pêche au homard (*Homarus americanus*) le long du versant nord de la péninsule gaspésienne. viii, 35 p. (11)
- 1981 Prouse, N.J., and J.F. Uthe. 1994. Concentrations of pesticides and other industrial chemicals in some sports fish species from a few sites in New Brunswick and Nova Scotia. v, 39 p. (5)
- 1982 Davidson, K., J. Hayward, M. Hambrook, A.T. Bielak, and J. Sheasgreen. 1994. The effects of late-season angling on gamete viability and early fry survival in Atlantic salmon. 12 p. (14)
- 1983 Koeller, P., B. McCallum, D. Swain, M. Strong, D. Archambault, and S. Walsh. 1994. Accuracy and precision of Scanmar data recorded on Canadian groundfish surveys. iii, 39 p. (6)
- 1984 Vienneau, R., and M. Moriyasu. 1994. Study of the impact of ghost fishing on snow crab, *Chionoecetes opilio*, by conventional conical traps. iv, 9 p. (14)
- 1986 Komadina-Douthwright, S.M. 1994. Effects of beaver (*Castor canadensis*) activity on stream water quality under conditions of prolonged snow and ice-cover (Winter 1991-1992). vii, 34 p. (14)
- 1987 Minns, C.K., R. Sayer, and L. Tardioli. 1994. Design report for the DFO National LRTAP Biomonitoring Database. v, 99 p. (8)
- 1989 van Coillie, R., Y. Roy, Y. Bois, P.G.C. Campbell, P. Lundahl, L. Martel, M. Michaud, P. Riebel et/and C. Thellen. Proceedings of the Twentieth Annual Aquatic Toxicity Workshop, October 17-21, 1993, Quebec City, Quebec= Comptes rendus du vingtième colloque annuel de toxicologie aquatique: 17-21 octobre 1993, Québec, Québec. xliii, 331 p. (8)
- 1991 Wagemann, R. 1994. Thermodynamic data base for the aquatic chemical speciation software package: MACS80 (Version 5/1990-VAX and MS-DOS[®]) 3rd edition. iv, 113 p. (3)
- 1992 Conan, G.Y., M. Comeau, C. Gosset, G. Robichaud and C. Garaicochea. 1994. The Bigouden Nephrops trawl, and the Devismes trawl, two other trawls efficiently catching benthic stages of snow crab (*Chionoecetes opilio*), and American lobster (*Homarus americanus*). vi, 27 p. (14)
- 1993 Kelso, J.R.M., K.M. Murphy, K.I. Adare, A.J. Niimi, and C.-J. C. Jackson. 1994. Potential mercury amelioration methods in aquatic ecosystems. v, 20 p. (13)
- 1995 Flannagan, J.F., and D.G. Cobb. 1994. Studies on some riverine insect emergence traps: effects of sampling frequency and trap design. iv, 10 p. (3)
- 1996F Dufour, R., et D. Bernier. 1994. Potentiel d'exploitation du crabe des neiges (*Chionoecetes opilio*) et des crabes *Hyas araneus* et *Hyas coarctatus* dans le Nord de la péninsule gaspésienne. viii, 51 p. (11)
- 2000 Martynov, V., G. Chaput, F. Whoriskey, and J. Anderson. 1994. Fishes of the shallow rapids and riffles of the Pizhma River, Pechora River Basin, Russia. vi, 31 p. (14)
- 2006 Savenkoff, C., L. Comeau, A.F. Vézina, and Y. Gratton. 1994. Seasonal variation of the biological activity in the lower St. Lawrence Estuary. v, 22 p. (11)
- 2011 Anderson, L.E., and J. Garlich-Miller. 1994. Economic analysis of the 1992 and 1993 summer walrus hunts in northern Foxe Basin, Northwest Territories. iv, 20 p. (3)
- 2012 Parsons, G.J., and M.J. Dadswell. 1994. Evaluation of intermediate culture techniques, growth, and survival of the giant scallop, *Placopecten magellanicus*, in Passamaquoddy Bay, New Brunswick. vii, 29 p. (4)
- 2013 Peterson, R.H., and D.J. Martin-Robichaud. 1994. First feeding and growth of elvers of the American eel (*Anguilla rostrata* (Lesueur)) at several temperature regimes. iii, 11 p. (4)
- 2014F Gendron, L., et C. Cyr. 1994. Distribution bathymétrique et saisonnière du crabe commun (*Cancer irroratus*) au large d'Anse-à-Beaufils, Québec. ix, 53 p. (11)
- 2015 Jessop, B.M. 1994. Homing of alewives (*Alosa pseudoharengus*) and blueback herring (*A. aestivalis*) to and within the Saint John River, New Brunswick, as indicated by tagging data. v, 22 p. (6)
- 2018 Dermott, R. 1994. Benthic invertebrate fauna of Lake Erie 1979: distribution, abundance and biomass. vi, 82 p. (9)
- 2019F Ouellet, P. J.-P. Allard, et J.-F. St-Pierre. 1994. Distribution des larves d'invertébrés décapodes (Pandalidae, Majidae) et des oeufs et larves de poissons dans le nord du golfe du Saint-Laurent en mai et juin de 1985 à 1987 et 1991-1992. viii, 60 p. (11)

2021 Tremblay, M.J., M.D. Eagles and R.W. Elner. 1994.

Catch, effort and population structure in the snow crab fishery off eastern Cape Breton, 1978-1993: a retrospective. iii, 44 p. (6)

CANADIAN MANUSCRIPT REPORT OF FISHERIES AND AQUATIC SCIENCES/
RAPPORT MANUSCRIT CANADIEN DES SCIENCES HALIEUTIQUES ET AQUATIQUES

Abbreviation/Abréviation: MF

These reports contain scientific and technical information that is of sufficient importance to be preserved but that is not appropriate for primary scientific publication. They deal primarily with national or regional problems and distribution is generally restricted to institutions or individuals located in particular regions of Canada. No restriction is placed on subject matter and the series reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries management, technology and development, and aquatic environments relevant to Canada. The reports are abstracted in *Aquatic sciences and fisheries* abstracts and are indexed annually in the Department's index to scientific and technical publications. The number in parentheses at the end of each reference indicates the name of the establishment from which the report originated (see pages 2762 and 2763 for addresses). Copies of reports can be obtained from Micromedia Limited, 165 Hôtel de Ville, Hull (Québec) J8X 3X2.

Ces rapports contiennent des données scientifiques et techniques suffisamment importantes pour être consignées mais qui ne se prêtent pas à la publication dans un journal scientifique. Ils s'attachent principalement à des problèmes d'ordre national ou régional et la distribution en est généralement limitée aux organismes et aux personnes de régions particulières du Canada. Comme il n'y a aucune restriction quant aux sujets abordés, la collection reflète la vaste gamme des intérêts et des politiques du ministère des Pêches et des Océans, notamment dans les domaines de la gestion des pêches, de la technologie, du développement et des milieux aquatiques s'appliquant au Canada. Les rapports sont résumés dans *Résumés des sciences aquatiques et halieutiques* (ASFA) et figurent dans l'index annuel des publications scientifiques et techniques du ministère. Le nombre entre parenthèses après le titre de chaque rapport représente l'établissement qui a fourni le rapport (les adresses se trouvent aux pages 2762 et 2763). On peut obtenir des exemplaires des rapports en communiquant avec Micromedia limitée, 165, rue Hôtel de Ville, Hull (Québec) J8X 3X2.

- 2118 Fedorenko, A.Y., and E.A. Perry. 1991. Migration timing of coho salmon to the Capilano River and the implications for stock management. ix, 79 p. (10)
- 2166 Thomas, G., S. Farlinger, and W. Carolsfeld. 1992. Abalone resurvey in the southeast Queen Charlotte Islands in 1990. v, 93 p. (1)
- 2200 Schubert, N.D., M.K. Farwell, L.W. Kalnin. 1993. Enumeration of the 1992 Harrison River chinook salmon escapement. viii, 25 p. (10)
- 2208 Schubert, N.D., M.K. Farwell, and L.W. Kalnin. 1994. A coded wire tag assessment of Salmon River (Langley) coho salmon: 1991 tag application and 1992-1993 spawner enumeration. ix, 38 p. (10)
- 2209 Minns, C.K., S.W. King, and C.B. Portt. 1993. Morphological and ecological characteristics of 25 fishes occurring in Great Lakes' Areas of Concern. vi, 25 p. (9)
- 2216 Loftus, K.K., L. A. Greig, T.A. Pinfold, M. Kilfoil, and J.D. Meisner. 1993. Comprehensive development strategy for the anadromous and inland recreational fisheries of New Brunswick. xxii, 235 p. (14)
- 2219 Cox-Rogers, S., and L. Jantz. 1993. Recent trends in the catchability of sockeye salmon in the Skeena River gillnet test fishery, and impacts on escapement estimation. iii, 19 p. (15)
- 2220 Lavigne, L., M.O. Hammill, et S. Asselin. 1993. Distribution et biologie des phoques et autres mammifères marins dans la région du parc marin du Saguenay. vi, 40 p. (11)
- 2223 Chang, P.S.S., D.G. Cobb, J.F. Flannagan, and O.A. Saether. 1994. Light trap collections of mayflies, caddisflies and chironomids from Lake Winnipeg during 1969 and 1971. iv, 27 p. (3)
- 2224 Cosens, S.E., R. Crawford, B.G.E. de March, and T.A. Shortt. 1993. Report of the Arctic Fisheries Scientific Advisory Committee for 1991/92 and 1992/93. iv, 51 p. (3)
- 2225 Kenchington, T.J., and R.G. Halliday. 1994. A survey of fishing practices in the Scotia-Fundy region groundfish longline fisheries. xi, 630 p. (5)
- 2226 Meister, J.-P., and S. Bastien-Daigle. 1993. Specifications for establishing a nursery of indigenous plants for shoreline stabilization. v, 44 p. (14)
- 2226F Meister, J.-P., and S. Bastien-Daigle. 1993. Devis pour l'établissement d'une pépinière de plantes indigènes aux fins de stabilisation des rives. v, 36 p. (14)
- 2230 Kenchington, E.L., and M.J. Lundy. 1994. The Annapolis Basin scallop fishery: A historical perspective and 1993 stock assessment. iii, 24 p. (6)
- 2234 Webb, T.M., C.J. Daniel, J. Korman, and J.D. Meisner. Development of a fish habitat sensitivity indexing scheme for application in the Fraser River basin. xii, 122 p. (10)
- 2235 Goodchild, G.A., and S. Metikosh. 1994. Fisheries-related information requirements for pipeline water crossings. vii, 18 p. (9)
- 2236 Department of Fisheries and Oceans, and Ontario Department of Natural Resources. 1994. Ontario Guidelines for Aquatic Plant Control. vi, 25 p. (9)

- 2238 Rood, K.M., and R.E. Hamilton. 1994. Hydrology and water use for salmon streams in the Fraser Delta Habitat Management Area. :British Columbia. x, 84, [96] p. (10)
- 2240 Serbic, G. 1994. The IBM-PC salmon escapement data-entry system. vi, 21 p. (1)
- 2241 Schubert, N.D., M.K. Farwell, and L.W. Kalnin. 1994. A coded wire tag assessment of Salmon River (Langley) coho salmon: 1992 tag application and 1993-1994 spawner enumeration. viii, 33 p. (2)
- 2242 Schubert, N.D., M.K. Farwell, and L.W. Kalnin. 1994. Enumeration of the 1993 Harrison River chinook salmon escapement. viii, 27 p. (10)
- 2243 Wildish, D.J., and M.J. Rudl. 1994. The rising cost of publishing in aquatic science journals. iii, 19 p. (4)
- 2244 Department of Fisheries and Oceans. 1994. 1994 Gulf Region stock status report for groundfish and herring = Rapport sur l'état des stocks de poisson de fonds et de hareng pour la Région du Golfe 1994. iv, 128 p. (14)
- 2247 Gendron, L., and S. Robinson. 1994. The development of underutilized invertebrate fisheries in Eastern Canada. Workshop proceedings. Moncton, New Brunswick November 23 -25 1993. vii, 129 p. (11)
- 2249 Nelson, T.C. 1994. Abundance, age, size, sex and coded wire tag recoveries for chinook salmon escapements of Kitsumkalum River, 1993. viii, 47 p. (10)
- 2251 Frith, H.R., and T.C. Nelson. 1994. Abundance, age, size, sex and coded wire tag recoveries for chinook salmon escapements of Campbell and Quinsam rivers, 1993. ix, 59 p. (10)
- 2252 O'Boyle, R.N., and K.C.T. Zwanenburg. 1994. Report of the Scotia-Fundy regional advisory process (RAP). xii, 208 p. (5)
- 2253 Gascon, D. 1994. Fish stocks status report for the Quebec region in 1994. = Rapport sur l'état des stocks de poissons pour la Région du Québec en 1994. iv, 71 p.
- 2255 Nelson, T.C. 1994. Stamp Falls Fishway counts, adipose clip/CWT recovery and biological sampling of chinook salmon escapements in Stamp River and Robertson Creek Hatchery, 1993. ix, 82 p. (10)
- 2256 Cox-Rogers, S. 1994. Description of a daily simulation model for the Area 4 (Skeena River) commercial gillnet fishery. iv, 46 p. (15)
- 2257F Savard, L. 1994. Rapport sur l'état des invertébrés en 1993: crustacés et mollusques des côtes du Québec et crevette nordique de l'estuaire et du golfe du Saint-Laurent. x, 128 p. (11)
- 2258 Lévesque, P. 1994. List of DFO-Sponsored Publications Science Branch - Gulf region 1982-1993. Revised editions. - Liste des publications subventionnées par le MPO direction des sciences - Région du golfe 1982-1993. Édition revue et corrigée. i, 49 p. (14)
- 2260 Marcogliese, D.J., and G. McClelland. 1994. The status of biological research on sealworm (*Pseudoterranova decipiens*) in eastern Canada. viii, 25 p. (11)
- 2261 Flannagan, J.F., D.G. Cobb, and P.M. Flannagan. 1994. A review of the research on the benthos of Lake Winnipeg. iv, 17 p. (3)
- 2262 Stewart, D.B. 1994. A review of the status and harvests of fish, invertebrate, and marine mammal stocks in the Nunavut Settlement Area. iv, 98 p. (3)
- 2269 Chang, B.D. 1994. St. Andrews Biological Station Activity Report 1990-1993. iv, 55 p. (4)
- 2270F Sévigny, J.-M., et C.M. Couillard. 1994. Le fjord du Saguenay: un milieu exceptionnel de recherche. v, 118 p. (11)

**CANADIAN DATA REPORT OF FISHERIES AND AQUATIC SCIENCES/
RAPPORT STATISTIQUE CANADIEN DES SCIENCES HALIEUTIQUES ET AQUATIQUES**
Abbreviation/Abréviation: DF

These reports provide a medium for filing and archiving data compilations where little or no analysis is included. Such compilations commonly will have been prepared in support of other journal publications or reports. The subject matter of these reports reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries management, technology and development, and aquatic environments relevant to Canada. Data reports are not intended for general distribution and the contents must not be referred to in other publications without prior written clearance from the issuing establishment. The reports are abstracted in *Aquatic sciences and fisheries abstracts* and are indexed annually in the Department's index to scientific and technical publications. The number in parentheses at the end of each reference indicates the name of the establishment from which the report originated (see pages 2762 and 2763 for addresses). Copies of reports can be obtained from Micromedia Limited, 165 Hôtel de Ville, Hull (Quebec) J8X 3X2.

Ces rapports servent de base à la compilation des données de classement et d'archives pour lesquelles il y a peu ou pas d'analyse. Cette compilation aura d'ordinaire été préparée pour appuyer d'autres publications ou rapports. Le sujet de ces rapports reflète la vaste gamme des intérêts et politiques du ministère des Pêches et des Océans, notamment dans les domaines de la gestion des pêches, de la technologie, du développement et des milieux aquatiques s'appliquant au Canada. Les rapports statistiques ne sont pas préparés en vue d'une vaste distribution et leur contenu ne doit pas être mentionné dans une publication sans l'autorisation écrite préalable de l'établissement qui en est l'auteur. Les rapports sont résumés dans *Résumés des sciences aquatiques et halieutiques* (ASFA) et figurent dans l'index annuel des publications scientifiques et techniques du ministère. Le nombre entre parenthèses après le titre de chaque rapport représente

l'établissement qui a fourni le rapport (les adresses se trouvent aux pages 2762 et 2763). On peut obtenir des exemplaires des rapports en communiquant avec Micromedia limitée, 165, rue Hôtel de Ville, Hull (Québec) J8X 3X2.

- 894F Vézina, A.F., Y. Gratton, N. Navarro, et L. Devine Castonguay. 1994. Structure thermohaline et biologique de la couche de surface de l'estuaire maritime du Saint-Laurent. II. juin-juillet 1990. vi, 79 p. (11)
- 910 Carder, G.W. 1993. Data from various commercial fisheries for Arctic charr, *Salvelinus alpinus* (L.), in the Nunavut Settlement Area, Northwest Territories, 1989, 1991 and 1992. vi, 38 p. (3)
- 911 Cruikshank, D.R. 1994. Temperature profiles and Secchi transparency for 23 lakes in the Experimental Lakes Area, 1988-1993. x, 157 p. (3)
- 912 Hopky, G.E., M.J. Lawrence, and D.B. Chipperzak. 1994. NOGAP B2; Zooplankton data from the Canadian Beaufort Sea shelf, 1987 and 1988. v, 219 p. (3)
- 919 Delaney, G., E. Tremblay, F. Leblanc, A. Locke, and G. Atkinson. 1993. Data from the Black River fish counting fence, Kouchibouguac National Park, from 1984 to 1992. v, 5, [27] p. (14)
- 921 Fudge, R.J.P., R.A. Bodaly, and N.E. Strange. 1994. Lake variability and climate change study: fisheries investigations from the Northwestern Ontario Lake Size Series (NOLSS) lakes, 1987-1989. v, 96 p. (3)
- 922 Hopky, G.E., M.J. Lawrence, and D.B. Chipperzak. 1994. NOGAP B2; Zooplankton data from the Canadian Beaufort Sea shelf, 1984 and 1985. iv, 164 p. (3)
- 923 Hopky, G.E., M.J. Lawrence, and D.B. Chipperzak. 1994. NOGAP B2; Zooplankton data from the Canadian Beaufort Sea shelf, 1986. iv, 225 p. (3)
- 924 Hopky, G.E., M.J. Lawrence, S.M. McRae, and D.B. Chipperzak. 1994. NOGAP B.2; List of scientific names of algae, invertebrates, and vertebrates captured under NOGAP subprojects B.2.1 and B.2.3, 1984 to 1988. iv, 76 p. (3)
- 928 Flannagan, J.F., and D.G. Cobb. 1994. The benthic crustaceans from the 1969 Lake Winnipeg baseline survey. iv, 11 p. (3)
- 930 Jessop, E.F., K.T.J. Chang-Kue, and G. MacDonald. 1994. Fish resource data from the Snare River, Northwest Territories. v, 48 p. (3)
- 933F D'Amours, P., S. Courtenay, C. LeBlanc et G. Landry. 1994. Débarquements historiques et inventaires de l'éperlan arc-en-ciel réalisés dans la Baie-des Chaleurs entre 1917 et 1993. vii, 57 p. (14)
- 937 Subba Rao, D.V., W. G. Sprules, A. Locke, and J.T. Carlton. 1994. Exotic phytoplankton species from ships' ballast waters: risk of potential spread to mariculture sites on Canada's East Coast. iv, 51 p. (5)
- 941 Cruikshank, D.R. 1994. Whole lake chemical additions in the Experimental Lakes Area, 1990-1993. iv, 19 p. (3)
- 946 Caissie, D., N. El-Jabi, and D.R. Alexander. 1994. Instream flow data for Atlantic Canada. = Données sur les débits réservés au Canada Atlantique. x, 87 p. (14)
- 947 Grégoire, F., and M. Showell. 1994. Description of the mackerel catches (*Scomber scombrus* L.) of the foreign fishery in NAFO Divisions 4Vn, 4W and 4X between 1990 and 1992. = Description des captures de maquereau (*Scomber scombrus* L.) de la pêche étrangère dans les divisions de l'OPANO 4Vn, 4W et 4X entre 1990 et 1992. xi, 115 p. (11)

CANADIAN INDUSTRY REPORT OF FISHERIES AND AQUATIC SCIENCES/
RAPPORT CANADIEN À L'INDUSTRIE SUR LES SCIENCES HALIEUTIQUES ET AQUATIQUES
Abbreviation/Abréviation: IF

These reports contain the results of research and development that are useful to industry. The reports are directed primarily toward individuals in the primary and secondary sectors of the fishing and marine industries. No restriction is placed on subject matter and the series reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries management, technology and development, and aquatic environments relevant to Canada. The reports are abstracted in *Aquatic sciences and fisheries abstracts* and are indexed annually in the Department's index to scientific and technical publications. The number in parentheses at the end of each reference indicates the name of the establishment from which the report originated (see pages 2762 and 2763 for addresses). Copies of reports can be obtained from Micromedia Limited, 165 Hôtel de Ville, Hull (Québec) J8X 3X2.

Ces rapports contiennent les résultats des recherches et des progrès qui sont utiles à l'industrie. Ils sont préparés principalement à l'intention des membres des secteurs primaire et secondaires des industries des pêches et de la mer. Il n'y a aucune restriction quant aux sujets abordés et la collection reflète la vaste gamme des intérêts et des politiques du ministère des Pêches et des Océans, notamment dans les domaines de la gestion des pêches, de la technologie, du développement et des milieux aquatiques s'appliquant au Canada. Les rapports sont résumés dans *Résumés des sciences aquatiques et halieutiques* (ASFA) et figurent dans l'index annuel des publications scientifiques et techniques du ministère. Le nombre entre parenthèses après le titre de chaque rapport représente l'établissement qui a fourni le rapport (les adresses se trouvent aux pages 2762 et 2763). On peut obtenir des exemplaires des rapports en communiquant avec Micromedia limitée, 165, rue Hôtel de Ville, Hull (Québec) J8X 3X2.

- 218 Chalmers, D.D. 1993. Review of the 1991-1992 British Columbia herring fishery and spawn abundance. viii, 133 p. (1)
- 220F Grégoire, H. Dionne, et C. Lévesque. 1994. Contenu en gras chez le maquereau bleu (*Scomber scombrus* L.) en 1991 et 1992. ix, 70 p. (11)
- 221 Fréchette, L. Pagé, and P. Bergeron. 1994. Toward a new management tool for aquaculture. vii, 18 p. (16)
- 221F Fréchette, L. Pagé, and P. Bergeron. 1994. Vers un nouvel outil de gestion en aquaculture vii, 19 p. (16)
- 222 Courtenay, S.C., R. Claytor, G. Chaput, D.S. Moore, and D.M. Robertson. 1994. Salmon catch and effort in the Miramichi River First Nations gillnet fishery. vi, 19 p. (14)
- 223 Lanteigne, M., P. Mallet, W. Landsburg, and G. Robichaud. 1994. Southern Gulf of St. Lawrence lobster fishery - 1993 summary sheets. = Pêcherie du homard dans le sud du golfe du Saint-Laurent - Feuilles sommaires pour 1993. iv, 18 p. = iv, 18 p. (14)
- 224 F Hardy, D., J.-D. Dutil, J. Munro, L. Provencher, R.F.J. Bailey et J.-C.F. Brêthes. 1994. La stabulation du crabe des neiges (*Chionoecetes opilio*). vii, 38 p. (11)
- 225 Cormier, A., M. Comeau, L. Cimon-Melanson, M. DeGrâce, and F. Savoie. 1994. Nutritional composition of canner size lobster meat in relation to the fishing season in the Gulf of St. Lawrence. vi, 23 p. (14)

**CANADIAN TECHNICAL REPORT OF HYDROGRAPHY AND OCEAN SCIENCES/
RAPPORT TECHNIQUE CANADIEN SUR L'HYDROGRAPHIE ET LES SCIENCES OCÉANIQUES**
Abbreviation/Abréviation: TH

These reports contain scientific and technical information that is of sufficient importance to be preserved but that is not appropriate for primary scientific publication. No restriction is placed on subject matter and the series reflects hydrography and chemical and physical oceanography programs of the Department of Fisheries and Oceans. The reports are abstracted in *Aquatic sciences and fisheries abstracts* and are indexed annually in the Department's index to scientific and technical publications. The number in parentheses at the end of each reference indicates the name of the establishment from which the report originated (see pages 2762 and 2763 for addresses). Copies of reports can be obtained from Micromedia Limited, 165 Hôtel de Ville, Hull (Québec) J8X 3X2.

Ces rapports contiennent des données scientifiques et techniques suffisamment importantes pour être consignées mais qui ne se prêtent pas à la publication dans un journal scientifique. Il n'y a aucune restriction quant aux sujets abordés et la collection reflète les programmes d'hydrographie ainsi que d'océanographie chimique et physique du ministère des Pêches et des Océans. Les rapports sont résumés dans *Résumés des sciences aquatiques et halieutiques* (ASFA) et figurent dans l'index annuel des publications scientifiques et techniques du ministère. Le nombre entre parenthèses après le titre de chaque rapport représente l'établissement qui a fourni le rapport (les adresses se trouvent aux pages 2762 et 2763). On peut obtenir des exemplaires des rapports en communiquant avec Micromedia limitée, 165, rue Hôtel de Ville, Hull (Québec) J8X 3X2.

- 119(1)F Larouche, P. 1993. Profils de salinité et de température recueillis dans le courant de Gaspé. Volume 1: September 1991. v, 119 p. (11)
- 119(4)F Larouche, P. 1993. Profils de salinité et de température recueillis dans le courant de Gaspé. Volume 4: Juin 1993. v, 46 p. (11)
- 124 Colbourne, E.B., and P. Stead. 1993. Long-term Temperature Monitoring Program 1989: Newfoundland Region. vi, 336 p. (7)
- 125 Drinkwater, K.F., R.A. Myers, R.G. Pettipas, and T.L. Wright. 1994. Climatic data for the Northwest Atlantic: The position of the shelf/slope front and the northern boundary of the Gulf Stream between 50°W and 75°W, 1973-1992. iv, 103 p. (5)
- 126 Ages, A.B., and A.L. Woollard. 1994. The salinity intrusion in the Fraser River: Observations of salinities, temperatures and currents by time series and Hovercraft coverage 1985, 1986 and 1987. iii, 166 p. (12)
- 127 Gregory, D.N., E. Verge, P. Langille, and S. Creaser. 1994. Long-term temperature monitoring program 1993 Scotia-Fundy and the Gulf of St. Lawrence. v, 167 p. (5)
- 128 Tang, C.L., B.M. DeTracey, Q.Y. Gui, and R. Lively. 1994. CASP II sea-ice and oceanographic observations, March-April, 1992. v, 146 p. (5)
- 131 Lively, R.R. 1994. Current meter, tide gauge, minimet meteorological buoy and hydrographic observations for the CASP II experiment on the Northern Grand Banks and N.E. Newfoundland Shelf, December 1991 to May 1992. v, 258 p. (5)
- 133 Ages, A.B., and A.L. Woollard. 1994. The salinity intrusion in the Fraser River: Observations of salinities, temperatures and currents by profiles and bottom time series 1988, 1989. iii, 239 p. (12)
- 150 Colbourne, E., and D.R. Sencill. 1993. Temperature, salinity and density along the standard Bonavista transect. vi, 331 p. (7)
- 151 Melling, H., and D.A. Riedel. 1993. Draft and movement of pack ice in the Beaufort Sea, April 1990 - March 1991. 79 p. (12)
- 152 Petrie, B. 1993. Storm-forced currents on the Grand Banks from a 2-dimensional barotropic model. vi, 145 p. (5)
- 153 Prinsenberg, S.J., I.K. Peterson, and G.A. Fowler. 1993. Newfoundland Shelf Sea Ice Program, 1992. vi, 115 p. (5)

PUBLICATIONS - CAN. TECH. REP. HYDROGR. OCEAN SCI/RAPP. TECH. CAN. HYDROGR. SCI. OCÉAN
PUBLICATIONS - CAN. DATA REP. HYDROGR. OCEAN SCI/RAPP. STAT. CAN. HYDROGR. SCI. OCÉAN

- 154 Stucchi, D.J. and U. Orr. 1993. Circulation and water property study of Prince Rupert Harbour, summer 1992. iv, 42 p. (12)
- 155 Thompson, J.A.J., and C. Stewart. 1994. Organotin compounds in the coastal biota of British Columbia - an overview. iii, 11 p. (12)
- 156 Milligan, T.G. 1994. Suspended and bottom sediment grain size distributions in Letang Inlet, N.B., October 1990. iv, 51 p. (5)
- 157 Narayanan, S. 1994. Current meter observations from Hamilton Bank and NE Newfoundland Shelf, 1990 to 1993. v, 184 p. (7)
- 158 Flato, G.M. 1994. McPIC - Documentation for the Multi-category Particle-In-Cell Sea Ice Model. v, 74 p. (12)
- 159 Colbourne, E.B., and C. Fitzpatrick. 1994. Temperature, salinity and density at Station 27 from 1978 to 1993. v, 117 p. (7)
- 160 Colbourne, E.B., and K.D. Foote. 1994. Spatial temperature and salinity fields over the shelves of Newfoundland and Labrador. v, 128 p. (7)
- 161 Cong, L.Z., and M. Ikeda. 1994. Variational assimilation of simulated GEOSAT altimeter data into a two-layer quasi-geostrophic model. vii, 55 p. (5)

CANADIAN DATA REPORT OF HYDROGRAPHY AND OCEAN SCIENCES/
RAPPORT STATISTIQUE CANADIEN SUR L'HYDROGRAPHIE ET LES SCIENCES OCÉANIQUES
Abbreviation/Abréviation: DH

This series provides a medium for documentation, archiving, and dissemination of data compilations where little or no analysis is included. Such compilations will commonly have been prepared in support of other publications or of work related to hydrography and to chemical and physical oceanography programs of the Department of Fisheries and Oceans. Data reports are not intended for general distribution and the contents must not be referred to in other publications without prior written authorization for the issuing establishment. The reports are abstracted in *Aquatic sciences and fisheries abstracts* and are indexed annually in the Department's index to scientific and technical publications. The number in parentheses at the end of each reference indicates the name of the establishment from which the report originated (see pages 2762 and 2763 for addresses). Copies of reports can be obtained from Micromedia Limited, 165 Hôtel de Ville, Hull (Québec) J8X 3X2.

Cette collection permet de recueillir, de classer et de diffuser des ensembles de données pour lesquelles il y a peu ou pas d'analyse. Ces données auront généralement été compilées pour appuyer d'autres publications ou travaux liés aux programmes d'hydrographie ainsi que d'océanographie physique et chimique du ministère des Pêches et des Océans. Les rapports statistiques ne sont pas préparés en vue d'une vaste distribution et leur contenu ne doit pas être mentionné dans d'autres publications sans l'autorisation écrite préalable de l'établissement qui en est l'auteur. Les rapports sont résumés dans *Résumés des sciences aquatiques et halieutiques* (ASFA) et figurent dans l'index annuel des publications scientifiques et techniques du ministère. Le nombre entre parenthèses après le titre de chaque rapport représente l'établissement qui a fourni le rapport (les adresses se trouvent aux pages 2762 et 2763). On peut obtenir des exemplaires des rapports en communiquant avec Micromedia limitée, 165, rue Hôtel de Ville, Hull (Québec) J8X 3X2.

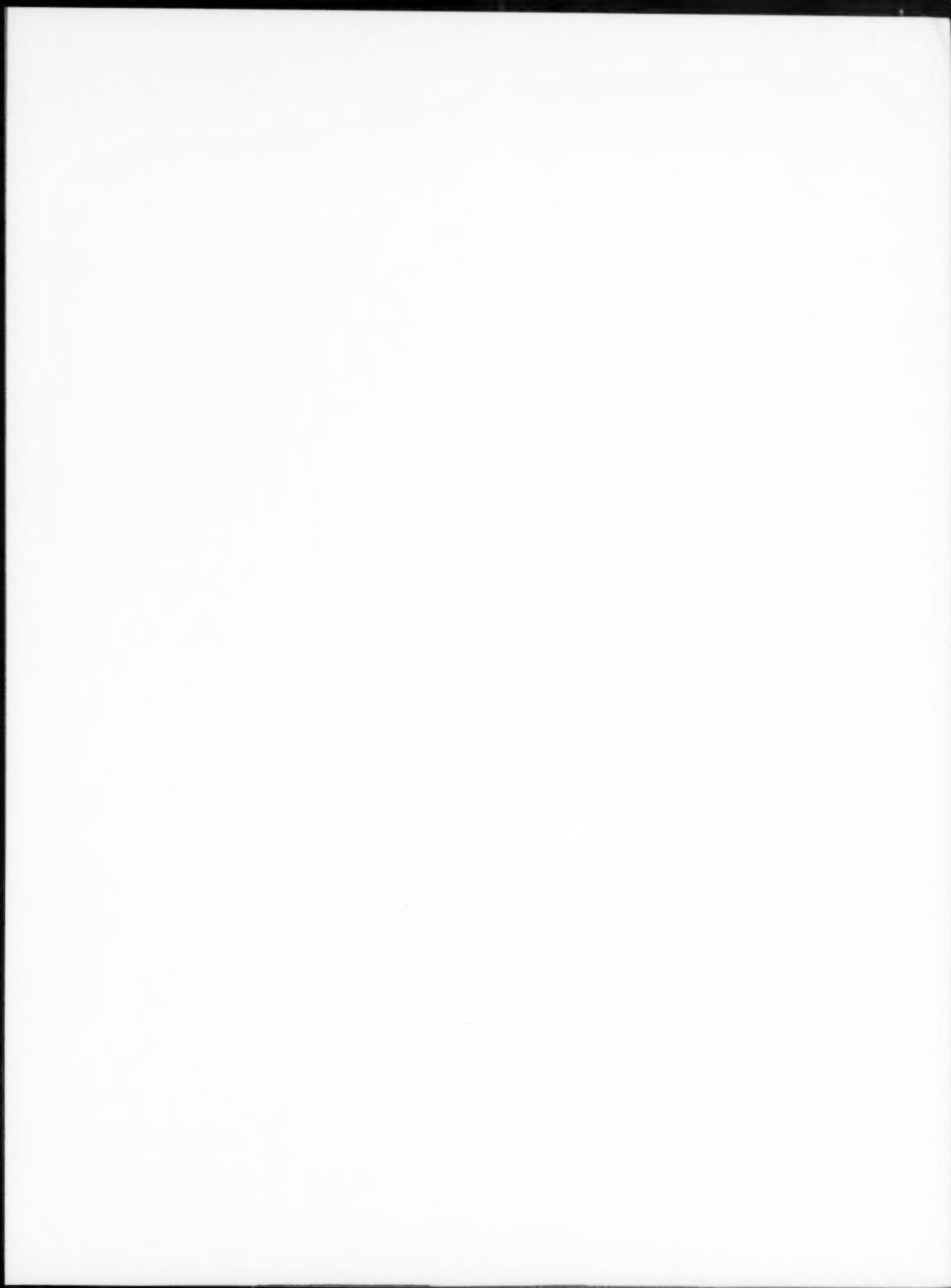
- 129 Pearson, R., M. O'Brien, D. Sieberg, F.A. McLaughlin, D.W. Paton, D. Tuele, J. Barwell-Clarke, E.C. Carmack, R.W. Macdonald, and M. Galbraith. 1994. NOGAP B.6, Physical and chemical data collected in the Beaufort Sea and Mackenzie River Delta, April-May and September, 1992, and ice core data collected in 1991-1992. v, 199 p. (2)
- 132 Saucier, F., P. Larouche, A. D'Astous and J. Dionne. 1994. Moored physical and oceanographic data from northeastern Hudson Bay between August 1992 and September 1993. v, 73 p. (11)

ECONOMIC AND COMMERCIAL ANALYSIS REPORT/
RAPPORT DE L'ANALYSE ÉCONOMIQUE ET COMMERCIALE
Abbreviation/Abréviation: EC

These reports contain analyses of trends, studies of government policies, marketing programs, support programs, trade, tariffs, etc. that are of sufficient importance to be preserved but that are not considered appropriate for primary publication. No restriction is placed on subject matter and the series records the results of work relating to the economic and commercial aspects of the Department of Fisheries and Oceans mandate. The reports are abstracted in *Aquatic sciences and fisheries abstracts* and are indexed annually in the Department's index to scientific and technical publications. The number in parentheses at the end of each reference indicates the name of the establishment from which the report originated (see pages 2762 and 2763 for addresses). Copies of reports can be obtained from Micromedia Limited, 165 Hôtel de Ville, Hull (Québec) J8X 3X2.

Ces rapports contiennent des études des politiques gouvernementales, des programmes de mise en marché, des programmes de soutien, du commerce, des tarifs, et des analyses de tendances, qui sont suffisamment importantes pour être consignées mais qui ne se prêtent pas à la publication dans une revue. Les sujets traités sont libres et la collection présente les résultats d'études économiques et commerciales reliées au mandat du ministère des Pêches et des Océans. Les rapports sont résumés dans *Résumés des sciences aquatiques et halieutiques* (ASFA) et ils figurent dans l'index annuel des publications scientifiques et techniques du ministère. Le nombre entre parenthèses après le titre de chaque rapport représente l'établissement qui a fourni le rapport (les adresses se trouvent aux pages 2762 et 2763). On peut obtenir des exemplaires des rapports en communiquant avec Micromedia limitée, 165, rue Hôtel de Ville, Hull (Québec) J8X 3X2.

- 93 Department of Fisheries and Oceans. 1991. Costs and earnings of selected inshore and nearshore fishing enterprises in the Newfoundland region - 1989. ix, 82 p. (7)
- 119 MacDonald, J.K. 1992. Crab harvesting economics and licensing options: Newfoundland Region. viii, 62 p. (7)
- 126 Dupuis, R. 1993. Economic and commercial analysis of lobster in Quebec, 1992. vii, 23 [13] p. (16)
- 127 Boucher, J., R. Dupuis, J. Lavallée, P. Lauzier, and P. Vincent. 1993. Current state of the Quebec fishing industry, January 1993. iii, 21 p. (16)
- 130 Lavallée, J., and F. Garneau. 1993. Economic and commercial analysis of the pelagic fishery in Quebec, 1992. vii, 27 [14] p. (16)
- 133F Boucher, J. et F. Gareau. 1993. Évolution des flottes de pêches du Québec, 1985 - 1992. Effectifs et débarquements. iv, 95, p. (16)
- 136 Department of Fisheries and Oceans. 1993. Statistical review 1986-1992. 123 p. (14)
- 137 Boucher, J. 1994. Economic and commercial analysis of the Quebec snow crab industry, 1993. vii, 27 [15] p. (16)
- 139 Lavallée, J. 1994. Economic and commercial analysis of the pelagic fishery in Quebec, 1993. x, 39 [21] p. (16)
- 140 Department of Fisheries and Oceans. 1994. Current state of the Quebec fishing industry, January 1994. Economic and commercial analysis. iii, 26 p. (16)
- 142 Department of Fisheries and Oceans. 1994. 1990 survey of recreational fishing in Canada: Selected results for the Great Lakes fishery x, 61 p. (8)
- 143 Vincent, P. 1994. Economic and commercial analysis of the shrimp fishing industry in Quebec, 1993. v, 20 [18] p. (16)
- 144 Digou, D. 1994. Scotia-Fundy Region Harvesting Sector Overview, 1986-1993. vi, 39 p. (6)
- 145 Lauzier, P. 1994. Economic and commercial analysis of the groundfish fishery in Quebec, 1993. vi, 24 [26] p. (16)
- 148 Economic and Policy Analysis Directorate. 1994. 1990 Survey of recreational fishing in Canada. i,[9], 146 p. (8)



1995
Annual Subscription Rates / Abonnements annuels *†‡

Publication	Volume	Code	Canada (\$CAN)		Foreign / Étranger (\$US)		
			Institutional/ Collectif (CI)	Personal/ Personnel (CP)	Institutional/ Collectif (FI)	Personal/ Personnel (FP)	Air mail / Par avion Add / ajouter
Monthly / Mensuelle							
Biochemistry and Cell Biology / Biochimie et biologie cellulaire	73	44	242	88	242	90	75
Canadian Journal of Botany / Revue canadienne de botanique	73	45	417 [§]	162	417 [§]	174	150
Canadian Journal of Chemistry / Revue canadienne de chimie	73	46	477	146	477	155	150
Canadian Journal of Earth Sciences / Revue canadienne des sciences de la Terre	32	47	398	128	398	134	150
Canadian Journal of Fisheries and Aquatic Sciences / Journal canadien des sciences halieutiques et aquatiques	52	261	365	130	395	145	150
Canadian Journal of Forest Research / Revue canadienne de recherche forestière	25	54	366	119	366	123	75
Canadian Journal of Microbiology / Revue canadienne de microbiologie	41	48	279	110	279	115	75
Canadian Journal of Physics / Revue canadienne de physique	73	49	296	94	296	96	75
Canadian Journal of Physiology and Pharmacology / Revue canadienne de physiologie et pharmacologie	73	50	347	112	347	119	75
Canadian Journal of Zoology / Revue canadienne de zoologie	73	51	449	166	449	175	150
Bimonthly / Bimestrielle							
Canadian Journal of Civil Engineering / Revue canadienne de génie civil	22	52	287	92	287	97	75
Genome / Génome	38	70	262	108	262	116	75
Canadian Geotechnical Journal / Revue canadienne de géotechnique	32	53	226	88	226	95	50
Quarterly / Trimestrielle							
Environmental Reviews/ Dossiers environnement	3	244	163	57	163	63	25

*Price of regular single issues of all journals: institutional, \$45.00; personal, \$20.00. / Prix des numéros réguliers de toutes les revues: collectif, 45,00 \$; personnel, 20,00 \$.

†Rates include second-class postage. Canadian customers please include additional 7% GST (GST No. R121491807). In Quebec please add a further 6.5% GST to the total price including GST (GST No. 1006178088). / Affranchissement de deuxième classe compris. Clients canadiens veuillez ajouter 7% pour la TPS (N° de TPS R121491807). Au Québec veuillez ajouter un 6,5% de plus pour la TVQ au montant total incluant la TPS (N° de TVQ 1006178088).

‡Special rates apply for members of Canadian scientific and engineering societies if they subscribe through their respective societies. / Les tarifs spéciaux sont offerts aux membres des sociétés scientifiques et des sociétés de génie au Canada, s'ils s'abonnent par l'intermédiaire de leur société respective.

§Institutional subscriptions include a supplementary issue containing the Proceedings of the Fifth International Mycological Congress. / Les abonnés collectifs recevront un supplément où seront publiés les Comptes rendus du Fifth International Mycological Congress.

Subscriptions, renewals, requests for single or back numbers, and all remittances should be sent to Subscription Office, Research Journals, National Research Council of Canada, Ottawa, ON K1A 0R6, Canada. Remittances should be made payable to the Receiver General for Canada, credit National Research Council of Canada.

Enquiries: Helen Goulet: 613-993-9084; Fax No.: 613-952-7656; E-mail: research.journals@nrc.ca.

Subscriptions are entered for the calendar year. There are no refunds on cancelled subscriptions once delivery has begun.

Change of address - Send change of address information (complete old address, customer code, and new address) to Subscription Office, Research Journals, National Research Council of Canada, Ottawa, ON K1A 0R6, Canada.

Claims for missing numbers should be made within four months (North America) or six months (outside North America) following the date of publication. The publisher expects to supply missing numbers only when losses have been sustained in transit and when the reserve stock will permit.

Abonnements - Pour toutes les questions d'abonnements, paiements, demandes de vieux numéros de la revue, etc., on doit s'adresser au Bureau d'abonnements, Revues scientifiques, Conseil national de recherches du Canada, Ottawa, ON K1A 0R6, Canada. Les chèques et mandats seront formulés à l'ordre du Receveur général du Canada, au crédit du Conseil national de recherches du Canada.

Renseignements: Helen Goulet: 613-993-9084; N° de télécopieur: 613-952-7656; Courriel électronique: research.journals@nrc.ca.

La durée des abonnements correspond à l'année civile. Les abonnements annulés ne pourront être remboursés une fois que le premier numéro sera envoyé.

Changement d'adresse - Faire parvenir tous renseignements (ancienne adresse, code du client et nouvelle adresse) au Bureau d'abonnements, Revues scientifiques, Conseil national de recherches du Canada, Ottawa, ON K1A 0R6, Canada.

Les réclamations de numéros manquants doivent être adressées dans les quatre mois (en Amérique du Nord) ou les six mois (à l'étranger) suivant la date de publication. L'éditeur s'engage à remplacer les numéros manquants seulement lorsque les pertes ont été subies en transit et lorsque ses réserves le permettent.



National Research
Council Canada
Ottawa, Canada
K1A 0R6

Conseil national
de recherches Canada
Ottawa, Canada
K1A 0R6

Postage paid at Ottawa
Publications mail
Registration pending

Port payé à Ottawa
Poste-publication
Enregistrement en cours

Canadian Journal of Fisheries and Aquatic Sciences

Journal canadien des sciences halieutiques et aquatiques

Volume 51, Index 1994

Preface/Préface	2887
List of Establishments/Liste des établissements	2888
Abbreviations/Abréviations	2890
List of Principal Index Terms/Liste des principaux termes	2892
Subject Index/Index par sujet	2894
Author Index/Index par auteur	2925
Journal	2936
Annual Report/Rapport annuel	2946
Technical Reports (Fisheries)/Rapports techniques (Pêches)	2946
Manuscript Reports (Fisheries)/Rapports manuscrits (Pêches)	2949
Data Reports (Fisheries)/Rapports statistiques (Pêches)	2950
Industry Reports (Fisheries)/Rapports à l'industrie (Pêches)	2951
Technical Reports (Hydrography)/Rapports techniques (Hydrographie)	2952
Data Reports (Hydrography)/Rapports statistiques (Hydrographie)	2953
Economic and Commercial Analysis Reports/Rapports de l'analyse économique et commerciale	2953

CJFSDX51(Index) 2885-2954 (1994)
ISSN 0706-652X

Canada

Printed in Canada by / Imprimé au Canada par
University of Toronto Press, Inc.
Typesetting by / Typographie par
Aubut & Nadeau Services Inc.

